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No. VII. OF VOL. I., 1922. **LONDON, SATURDAY, FEBRUARY 18, 1922.** **Pp. 112—Price 1s.**
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An Address
ON
INFLAMMATORY STRICTURES OF THE RECTUM.

Delivered before the Medical Society of London on Feb. 13th, 1922.

BY HENRI HARTMANN, HON. F.R.C.S. ENG.,
PROFESSOR OF CLINICAL SURGERY, UNIVERSITY OF PARIS.

THE subject that I intend to deal with to-day is not a new one. The inflammatory strictures of the rectum have been known for a long time. They are described under different names: annular or cylindrical strictures, tubular strictures, fibrous strictures, syphilitic strictures, ano-rectal syphiloma. You will not expect me to give you an account of all the literature which has been written on this subject. The mere reading of the titles of the papers would fill up the time at my disposal. Since in the course of my practice I have observed a fairly large number of inflammatory strictures, 86, I propose to limit my lecture to the results of my own practice, trusting that afterwards you will give me the benefit of your own experiences.

This study of a complete series of observations collected by the same surgeon is perhaps likely to be more accurate than if it were based on diverse cases picked up in books, often rare or curious observations, surgical successes being more often published than the more ordinary facts of every-day practice.

ÆTIOLOGY.

The inflammatory strictures of the rectum are fairly rare. I have observed 86 cases only in the course of my practice. Sex has certainly an influence on the production of these strictures. Richard Poelchen, who has collected in the medical literature 215 cases, finds 190 women to 25 men, consequently 86 per cent. of the cases were women. Carré, in his thesis, in 266 cases, found 210 women to 56 men; according to his figures, 72 per cent. of the cases were women. In my practice the predominance of women does not appear to be so great as these general statistics would lead one to believe. The statistics are based on published cases; and the disease has been particularly studied in hospitals for women suffering from venereal diseases. This is true, at least, for the French observations. Gosselin and Fournier published their works on the stricture of the rectum, whilst they were physicians at the Lourcine Hospital, which is exclusively devoted to women suffering from venereal diseases. My own statistics, based on cases collected in a clinic of general surgery, although showing a great frequency in women, do not show such a wide disproportion between the sexes. Out of 86 cases, I find 50 women to 36 men, which gives only 58 per cent. of cases in women.

The generally accepted idea that strictures of the rectum are much more frequently found among women, seems to me an overstatement. Kelsey, whose observations are also from a hospital devoted to both sexes, comes to a same conclusion. He writes that his own statistics, like mine, are against the general opinion, and confirms my view that strictures are not more frequently found in females than in males. As regards age, my patients may be divided as follows:—

Under	20 years of age	2	cases.
From	20 to 29	16	,,
,,	30 ,, 39	34	,,
,,	40 ,, 49	24	,,
,,	50 ,, 59	7	,,
Above	60 ,, —	1	case.

(In two of our observations, the age was not mentioned.)

Syphilis undoubtedly existed in 30 of my patients—that is to say, in 34·8 per cent. of the cases. In practice it is certainly more frequent, for it has not always been looked for with great care, and many of my observations were made at a time when the Wassermann reaction was unknown. This frequency of syphilis in patients suffering from strictures of the rectum is nowadays universally acknowledged by all the authors who have studied the question. Juliusberger, in his own statistics, notes 8 syphilitic patients among 20 suffering from strictures; Poelchen, in his general statistics, 96 syphilis in 215 strictures. According to Allingham, out of 70 patients 35 have a history of syphilis. The action of syphilis is to-day acknowledged everywhere.

Tuberculosis.—Leaving aside the cases where tuberculosis has developed after the stricture on account of the disturbance to nutrition brought about by the rectal lesion, I find 10 patients among 86 in whom pulmonary tuberculosis existed undoubtedly before the first symptoms of stricture—that is to say, in 8·6 per cent. of the cases.

Among the other causes frequently pointed out in my observations, I must mention *pæderasty* and *gonorrhœal infections*. In a certain number of cases, moreover, these different causes are associated.

Chronic Inflammations of the Uterus.—Goodsall and W. E. Miles incriminate chronic uterine inflammation, thinking that infiltrations may occur along the lympathic vessels situated round the rectum and may enter the pre-sacral glands. In spite of the very interesting observations made by these authors, this factor does not seem to me liable to play any part, save in a most exceptional way. I think that in the patients who before showing the symptoms of stricture, have suffered from a utero-annexial inflammation, there is very often a gonorrhœal infection which has affected at the same time the genital organs and the ano-rectal region. The existence of anal suppuration previous to any sign of stricture and the fact that in a few cases of ano-proctitis or anal ulceration, I have noticed at the level of these lesions the presence of gonococci, seems to confirm this opinion.

Dysentery.—Much may be said against dysentery, often mentioned as a cause of stricture of the rectum. It could be incriminated in only one case out of 86 patients. Mathews does not admit the existence of dysenteric stricture. He bases his opinion on this supposition that if only one of the many dysenteric soldiers of the War of Secession had later suffered from a stricture it would have been known, because he would certainly have tried to get a pension.

Since one of my patients was suffering from leprosy, it struck me that leprosy might, like syphilis or tuberculosis, be the starting point of a stricture of the rectum.

Chronic Constipation.—The influence of chronic constipation does not seem to me conclusive; it existed in several of my patients, but it is of so frequent occurrence that I do not think it can have any influence in the ætiology of stricture.

The same thing might be said of *hæmorrhoids*; these go frequently enough with proctitis, but the glairy and mucous proctitis of hæmorrhoids is very different from the suppurating and vegetating ano-proctitis which generally precedes the stricture.

PATHOLOGICAL ANATOMY.

In inflammatory strictures the lesions occupy a fairly extensive length of the rectum and the bowels are inflamed above and below the narrowed point; whilst in the stenosis in connexion with cancer the lesion is situated at various points and occupies a more or less extensive part of the rectum, but leaves untouched the walls of the bowels above and below.

The stricture lies generally in the lower region, 2 to 6 cm. above the anus. This low stricture was noticed in 77 of my observations; twice the stricture was higher, 8 to 9 cm. from the anus; in one case it occupied the middle part of the ampulla, and in another its upper part. In three cases the stricture extended along the whole length of the rectum and once even reached the lower part of the pelvic colon.

Once only I have seen two overlying strictures, one at 4 cm., the other at 12 cm. above the anus.

Usually the stricture has a cylindrical shape of varying length; very often it presents itself in the form of a circular pessary 2 or 3 cm. high. Once only the stricture was 1 cm. high, uneven, and showing a partially cicatricial aspect; in this case the microscopic examination revealed tuberculosis. Usually we can observe a funnel-shaped infundibulum, leading to a ring and an indurated cylinder of fibrous aspect, narrowing the bowels so much that the forefinger can barely enter and even the little finger is tightly enclosed. In a small number of cases the lumen of the stricture is decreased so much that a urethral catheter only can be introduced.

On the surface of the stricture there is hardly ever any ulceration. In a section all the coats are blended into one sclero-œdematous mass, from a few millimetres to 1 or 2 cm. thick. The lesions seem to lie especially in the submucous layer; the mucous membrane is intimately blended with the subjacent fibrous tissue; the muscular layers are invaded, but it is always quite possible to separate the external muscular fibres from the submucous hard mass, the internal fibres only being invaded by the sclerous processus.

Below the stricture the mucous membrane is inflamed, red, and ulcerated. Sometimes ulcerations can be seen. Nearly always the membrane has lost its elasticity; it is unyielding, sometimes greyish, and presents, here and there, an epidermic aspect. In one case I have seen cutaneous patches in the rectum, like rectal pachydermia, which could be compared with laryngeal pachydermia formerly described by Virchow. (Fig. 1.) The mucous membrane is generally thicker, strewn with granulations or even small lumps, sometimes papillomatous, sometimes molluscous; when such proliferations are very extensive the disease is called proliferative and stenosed proctitis. The anus presents ulcerations resembling fissures separating the small lumps of a condylomatous clump.

Above the stricture many authors, Gosselin and Fournier particularly, describe an ulceration which, invading the tissue round the rectum, could reach a great height, up to 5, 8, or 10 cm. The ulceration has a well-defined border, and a festooned ledge, above which the mucous membrane assumes suddenly a normal aspect. The existence of such an ulceration is, to my mind, exceptional; I have met it but once in 86 cases. Usually an extension of the inflammatory lesions of the mucous membrane, an infiltration of the rectal coats, and sometimes numerous ulcerations reaching as far as the descending colon is the picture presented. These ulcerations, resulting from the fæcal accumulation, are in association with a progressive mortification of the tissue.

It is noticeable that around the rectum fistulæ can generally be seen, starting nearly always below the stricture and opening very often at the skin, sometimes at the vulva, seldom in the vagina. In a few cases I have seen callous masses and even big sclero-lipomatous perirectal masses, which could be compared to those developed around the pelvis of the kidney in some suppurating calculous pyelonephritis.

The microscopical examination of cases of stricture of the rectum which I have studied with my friend, the late Dr. H. Toupet, on operative specimens, has made obvious a certain number of peculiarities. At first we were struck by the great scarcity of ulcerations of the mucous membrane at the level of the stricture. The mucous membrane has been transformed and the epithelial cylindrical coating with tubular glands is changed into a stratified pavement epithelium coated with irregular papilla. This substitution, that we have found also in the chronic proctitis without stricture, has been nearly always present in our preparations. It can be explained by the fact that the cylindrical epithelium becomes necrotic, falls off, and is replaced by an adjacent pavement epithelium, the epithelium of the columns of Morgagni for instance. In one case we were able to follow this substitution to the level of the glands of the region. The lumen of the gland was lined with cells like those of the deep layer of the skin; in front of this layer polygonal cells could be seen, with one or even two deeply staining coloured nuclei. On the contrary, in the depth of the pockets we found necrotic and badly-staining cells. The remainder of the cylindrical epithelium looked as if it was going to fall and be replaced by stratified pavement epithelium. (Fig. 2.)

Below the epithelium, when it is not involved, and below a single layer of embryonic cells, when it is ulcerated, the actual tissue of the stricture can be found composed of hard fibrous layers separated by embryonic diffused stripes, invading and separating the innermost layer of the muscular fibres. (Fig. 3.)

These different lesions are alike in all kinds of strictures. In some cases, in the middle of the fibrous layers, accumulations of round cells can be seen, especially round vascular lumens. At the same time on the internal coat of the artery are formed rounded vegetations: the lesions can also be observed in the same way in the veins. Sometimes the vessel is completely obliterated, replaced by a nodule limited by a fibrous zone or a miliary gumma whose centre sometimes shows a beginning of necrosis. (Fig. 4.) In other cases, in accordance with Sourdille's work, we have verified the existence of tubercular follicles with their peculiar structure, between the fibrous stripes of the submucous membrane.

The positive results given by inoculation of guinea-pigs establish the tuberculous nature of the lesions in these cases.

PATHOGENESIS.

From the histological evidence and the ætiological theories it is possible to discuss the pathogenesis of the inflammatory strictures of the rectum. If we consider the stricture as a whole, it is composed of fibrous tissue, resulting from a chronic inflammatory process. That is the reason why this lecture is entitled Inflammatory Strictures of the Rectum. The constant presence of these chronic inflammatory lesions explains that even in the syphilitics the anti-syphilitic remedies have no power either to cure or relieve the stricture. The existence of ano-rectal syphiloma, formerly maintained by Alfred Fournier, a great authority in syphilography, can no longer be admitted. It is true that syphilis is often the cause of the stricture of the rectum, but its action is indirect. A syphilitic lesion of the rectal wall is soon complicated by chronic inflammation and a stricture develops just as does a gonorrhœal or any other kind of proctitis. Its slow evolution scarcely allows us to follow the progress of the lesions from the beginning of the disease to the stricture itself. Once only I have been able to follow the disease from the beginning to the death, 11 years later.

The patient was 18 years old when I saw her for the first time. At 16 she got syphilis, at 17 she was operated upon for salpingitis. In November, 1891, she came to me for anal pains, with pus and blood. The examination of the anus revealed two small ulcerations. The posterior ulceration occupied the internal side of a hypertrophied anal fold; the rectum was not touched. In July, 1892, after antisyphilitic treatment, the patient came back to me with rectal suppuration. The anus was surrounded by condylomatous folds with cicatricial surfaces between, resulting from former ulcerations. The mucous membrane of the anal canal was thicker, uneven, and of soft fleshy consistence. The rectal mucous membrane was rough, like shagreen, presenting a series of slightly flattened nodules. The lesions stopped at an upper well-defined ring. All this surface was superficially excoriated, suppurating, and bleeding at the slightest touch. The examination of a piece removed showed a squamous layer covering a vascular layer with embryonic elements, grouped in nodules limited by a fibrous zone; there were endarteritic lesions. In short, these lesions reminded one of a syphilide.

The patient was again treated for syphilis. In December, 1893, the stricture of the rectum undoubtedly existed; it began at the level of the anus, and attained its maximum 6 cm. higher, admitting only a forefinger. The patient was treated with bougies. In October, 1899, fistulæ opened round the anus and labia. The patient, who was still opposed to surgical intervention, got worse and died in 1903 with amyloid complication.

This is an example of the whole evolution of the inflammatory stricture of the rectum initiated by syphilis; the treatment had no effect, but in other patients treated from the beginning the disease has been cured, according to Fournier, Verneuil, and Taylor's publications. The syphilitic nature of the lesion explains these cures. Later on, when the stricture has become indurated, the treatment has no effect. In some patients, either tuberculosis or ordinary proctitis, such as gonorrhœal, cause the first lesion. Then whatever may have been the initial lesion, at a certain period secondary infections appear, and the stricture is formed nearly always with identical characters.

NAKED-EYE AND HISTOLOGICAL APPEARANCES OF STRICTURES OF THE RECTUM.

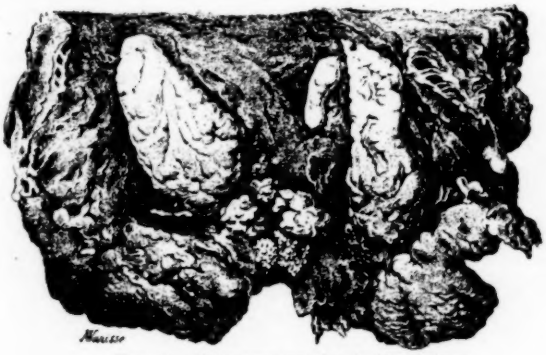

FIG. 1.—Cutaneous patches in the rectum.

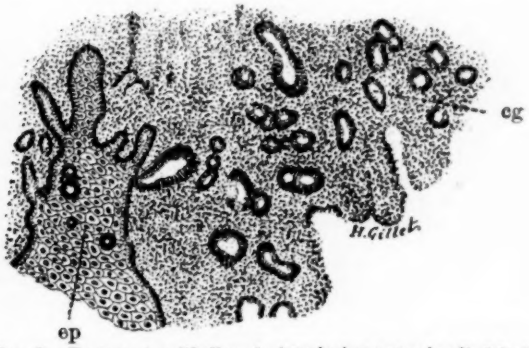

FIG. 2.—Pavement epithelium (ep) replacing normal cylindrical epithelium, which is still visible in the deep parts of the glands (cg).

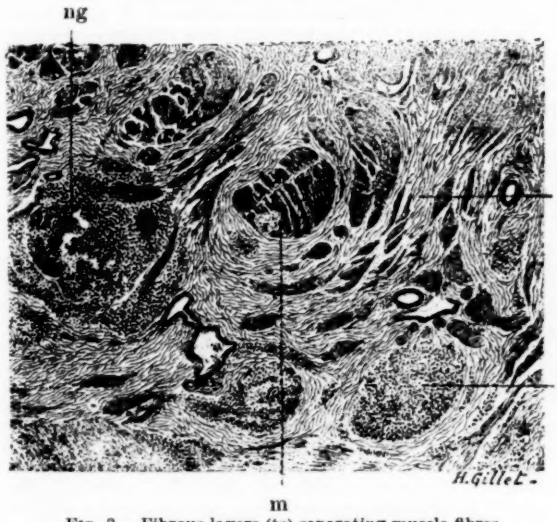

FIG. 3.—Fibrous layers (ts) separating muscle fibres (m); miliary gumma (ng).

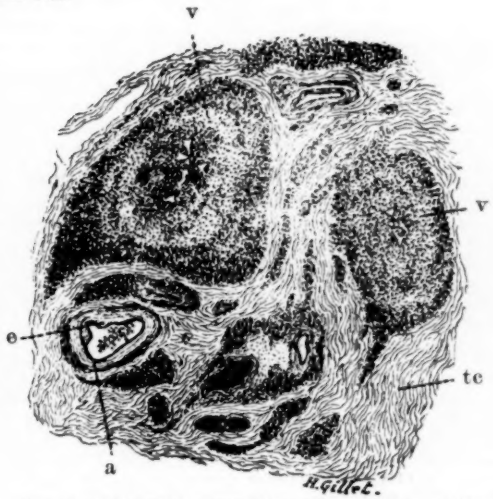

FIG. 4.—Indurated connective tissue (tc); miliary gumma (v) obliterating vein; artery (a); proliferation (e) of the inner coat.

SYMPTOMATOLOGY.

It is generally admitted that at first during a latent period the stricture develops slowly; but my own experience contradicts this opinion. Nearly always symptoms of proctitis precede symptoms of stricture. These symptoms are: Feeling of rectal fullness, frequent desire for action of the bowels, with painful discharge by the anus of muco-pus or simply pus. At this period there is no stricture but only a proctitis. Later on, the stricture being established, the motions are difficult and infrequent, the bowel being evacuated only at intervals of 2, 3, 4, or 5 days. The patients take cathartics and use enemas frequently. It is not quite like ordinary constipation, because at the same time there is a more or less considerable discharge of pus. The abundance of this suppuration varies. There are thus two forms of stricture: one with predominant suppuration, the other with predominant symptoms of stenosis. The discharge is simply purulent, but more often muco-purulent, glairy, or membranous, with blood; in a few of my cases the discharge was sanious, fœtid, blackish; sometimes patients are obliged to wear pads in consequence of the abundant suppuration. The edge of the anus and the neighbouring parts present erythematous eruption. The discharge may occur only with the stools; when extensive it passes independently of the fæces and is sometimes entirely purulent. It is possible to mistake this suppuration for the discharge of an intra-anal abscess. Though the bleeding is not so extensive and usual as in cancer, yet it may be so important; one of our patients compared it with menstruation.

As a rule, the discharge is not so profuse, and the symptoms of stricture predominate. There is intense and persistent constipation. The patients take daily enemas and cathartics. These palliatives, efficacious at the beginning, soon become insufficient. Evacuation soon takes place only at intervals of 5, 6, or 7 days. The stools are not only infrequent but difficult to pass, the fæces being evacuated with straining and painful efforts, so that the patients are afraid to eat. On the other hand, in a few cases only liquid fæces are passed, and of these there is an almost constant escape; there may be real incontinence. The stricture produces a change in the shape of the fæces; they are evacuated in flat tape-like pieces, sometimes in small ovoid pieces. As a consequence of the difficult evacuation, the patients

suffer from abdominal distension, from borborygmus, and from colic pains; after an extensive evacuation these symptoms disappear. I have never seen any case of complete obstruction though a few examples have been published. Ball has reported a case where the obstruction was produced by a plum-stone, which he drew out with forceps.

The patient loses strength and weight, often becomes tuberculous and so debilitated that death may follow, brought on by cachexia, complications, or by an intercurrent disease.

On examination around the anus there can be seen small and firm excrescences, sometimes condylomatous and excoriated on their internal face. The skin, thick and inflamed, is exceptionally the site of papillomatous stripes, following the direction of the anal folds, and sometimes extensively developed.

Digital Examination.—The digital examination should be made without a glove. Just beyond the anus or immediately above there will be found lesions of the mucous membrane, which is rough, dry, and uneven, and presents columnar thickenings. In a few cases the stricture was composed of a ring, enclosed in the rectal wall without a subjacent granular proctitis and without condylomata at the level of the anus; such cases are rare. Generally the stricture is at the upper border of lesions showing chronic proctitis and has a funnel-like form, of which the narrower part is 4 to 6 cm. from the anus. Just above it the mucous membrane assumes again its suppleness and its velvet-like aspect.

Since it is 1 to 3 cm. long and is accompanied by infiltration of the rectal wall, the inflammatory stricture never forms a tumour. At the utmost, under combined rectal and vaginal digital examination, it reveals a thickening of the wall. In some suppurating forms, small vegetating lumps which have been compared to molluscs for their pedicle-like shape, and ulcerations of the mucous membrane, are to be seen with the stricture. Digital examination is better than any kind of proctoscopy used nowadays, but proctoscopy excellently reveals the aspect of the mucous membrane. This is often red, uneven, with cicatricial spots, sometimes with vegetations and small ulcers. In a few cases the stricture is like a diaphragm and its stiff aspect and grey colour forms a striking contrast with the mucous membrane lower down. When the proctoscope can pass through the stricture it reveals a red mucous membrane obviously inflamed and some small rounded and bleeding ulcers.

In a great number of cases the stricture is complicated by a neighbouring suppuration, and sometimes the abscess and the resulting fistula are the first signs attracting the patient's attention. In 28 out of my 86 patients, about a third of the cases, I have observed fistulæ. They are often numerous, communicating with one another, situated either near the anus, in the ischio-rectal fossæ, near the coccyx, in the anterior perineum, or at the vulva, and present the peculiarity of nearly always opening in the rectum just below the stricture. They often go with a sclero-œdematous thickening of the diseased region, particularly of the vulva.

I have never observed any case of peritonitis, though this complication has been noticed after a rupture of the bowel during an effort of defæcation, after a too vigorous digital exploration, or after the insertion of bougies. In a single case only I have seen a cancer of the rectum supervening upon an inflammatory stricture.

Duration.—The duration of the disease is generally long; life may be prolonged 8, 10, or 15 years by correct treatment. The patients lead a miserable existence, and therefore it is quite important to treat the lesions when not very extensive and try to cure them.

TREATMENT.

Specific treatment has no effect on the stricture, even with syphilitic patients.

Treatment by *dilatation* is the most usual. The dilatation must be accomplished with gentleness. A bougie must be selected which passes through the stricture without force and without pain. If pain is caused irritation is also caused and the use of the bougie is rendered impossible. I use woven bougies covered with gum like urethral bougies. Two or three of these are introduced each time. The procedure should be repeated every other day, commencing with the bougie that had been left on the previous occasion and then introducing one or two larger sizes. Each bougie should be left in situ a few seconds only. This method does not irritate the rectum and does not increase the suppuration. When a sufficient size has been reached, the treatment should be continued once a week. This treatment never cures the disease. In some cases, when the symptoms of proctitis are predominant, patients may even get worse after dilatation.

Complete Extirpation.—By complete extirpation of the diseased region I have obtained permanent cures in cases where the lesions were limited to the termination of the rectum. These cases are unfortunately rare, the rectal wall being often inflamed above the stricture and at the beginning, when the lesions are strictly limited, the patients hardly suffer at all and refuse operation.

Description of Operation.—I perform an intra-sphincteric amputation very much like Whitehead's operation for hæmorrhoids. The dissection of the region surrounding the anal canal is rather difficult and must be performed with a bistoury. Beyond the sphincter it is generally possible to isolate the rectum with the finger, to strip it up, to bring down its upper end, and to stitch it to the skin. One must dissect very high and open the peritoneal pre-rectal cul-de-sac when it is necessary. First of all I put some small drainage-tubes between the sutures. In my last operations I have made a counter opening in the posterior part of one of the ischio-rectal fossæ, and I have inserted two drainage-tubes in the form of a V, placed obliquely in the front to reach the lateral parts of the detached rectum. The results were very good.

Unfortunately, it is often too late to perform such an operation; so the excision of the rectum is nearly always a palliative only. I have operated in this way on 34 cases with 32 cures; two patients died of pelvic cellulitis, one after 10 days, the other after 12. These two deaths occurred towards the beginning of my practice. Out of my last 25 operations there was no death. Twice I have been obliged to perform an abdomino-perineal excision on account of a stricture reaching the inferior half of the pelvic colon; results, one cure and one death.

It is necessary to incise and to curette the fistulæ when they exist. In some cases I have been obliged to combine the excision of the rectum and the curetting and incision of fistulæ. Generally I have simply prolonged the incision of the rectal wall just above the stricture to perform an external proctotomy with plugging; when this was possible I have brought down the superior angle of the rectal incision to stitch it to the skin, thus doing an autoplastic-proctotomy.

In cases beyond the reach of local treatment, where extensive suppuration is developed around the rectum, and the condition is grave, iliac colostomy is indicated. The patients gain immediately in health and strength. We have performed 17 colostomies with 16 cures, one patient dying from broncho-pneumonia. We have never performed internal proctotomy, which is dangerous both from hæmorrhage and sepsis.

Only a small number of radical cures can be obtained, but by combining different methods of treatment and by performing oftener perineal excision of the rectum and colostomy we can prolong life and greatly relieve our patients.

NEWCASTLE-UPON-TYNE AND NORTHERN COUNTIES MEDICAL SOCIETY.—At a meeting of this society, held on Feb. 2nd at the Royal Victoria Infirmary, an address was delivered by Dr. S. A. Kinnier Wilson on Common Nervous Symptoms and their Diagnostic Significance. The lecture was illustrated by lantern slides, and will be published in full in the Journal of the society.

Some Points
IN THE DIAGNOSIS OF
HEADACHES
AND OTHER NERVOUS MANIFESTATIONS OF NASAL ORIGIN.

An Address delivered to the Salisbury Branch Meeting of the British Medical Association.

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IN submitting for consideration the nervous symptoms of nasal origin, I have singled out and placed first the symptom of headache, because it is the dominant symptom in many nasal affections, and now very generally recognised as being sometimes attributable to the nose, sometimes to ocular defects, or to the teeth. We realise that while headache is often a symptom of cardio-vascular affections, blood dyscrasias—e.g., in renal disease and other general systemic abnormalities—it is in others a symptom of peripheral origin, and to this latter group belong the ocular, dental, and most nasal headaches. Let us therefore consider, first, the diagnosis of nasal headaches before passing to the more alluring subject of "other nervous phenomena of nasal origin."

NASAL HEADACHES.

The simplest cases of peripheral nasal headache are those due to pressure of the middle turbinal body on the septum nasi. Usually there is a deflected septum and then the middle turbinal body, when turgid or congested, becomes crowded against the corresponding part of the septum, causing a feeling of tightness in the nose and headache, usually supra-orbital, prone to arise when the head is low—e.g., in stooping or in bed—or when the nasal mucosa is irritated by dust or pollen, and therefore intermittent. Such headaches are temporarily relieved by spraying with weak cocaine or adrenalin solution, and may be cured by removal of the anterior third of the offending turbinate. Yet in few cases is the question so simply answered, for when we inquire as to the reason of this periodic swelling of the turbinate, it is very often found that the basic cause of the trouble is a sinusitis, and that it is the consequent turgescence of the whole nasal mucosa, super-added to a much longer standing narrowing of the nasal passages by the septal deflection, which causes the troublesome headache and blockage of the nose. In such cases it may be a simple matter to remove the nasal obstruction; but to leave the infective sinusitis and be content with overcoming obstruction by evisceration is treating a symptom rather than a disease. As I shall explain below, the headache may be the most obvious, but by far the less serious of the symptoms. Again, the peripheral source of headache may lie, not in the nasal passages, but in the nasal sinuses which open into the nasal passages. The sensory innervation of the accessory sinuses is derived from various branches of the fifth nerve and irritation from inflammation of the lining mucosa, or, in acute cases especially, pressure on the inflamed muco-periosteum by the accumulating pus causes severe and sometimes agonising neuralgic pain. The pain is very often referred to regions by no means corresponding to the offending sinus; thus, the headache of maxillary antral sinusitis is usually occipital, the headache of ethmoidal or sphenoidal sinusitis is supra-orbital or temporal at the back of the eyes, or is referred to the middle ear or mastoid area. A frontal sinusitis is usually associated with weight or pain over the sinus; pain in this area may likewise be due to a sphenoidal sinus, or an enlarged turbinate. But severe pains at the back of the eye or deep in the ear, when due to sphenoidal sinusitis, are very often mistaken respectively for ocular or aural disease. I have met with cases where this pain was so severe, and so definitely located deep in the ear, as to be mistaken for acute mastoiditis. Ocular headaches, usually due to uncorrected errors of refraction, are cured by wearing suitable glasses. But with a chronic nasal sinus infection, toxic absorption may induce a laziness of the intra-ocular musculature, so that a relatively slight degree of refractive error, which would be well compensated in health, becomes a source of headache. Hence even headaches that are relieved by glasses may really be due to a nasal affection.

I have spoken of the localisation of neuralgia or other types of headache due to the local irritation of the sensory nerves filaments of the various sinuses, such localisation being mostly encountered in the acute and subacute attacks of sinusitis. But equally important is the more diffuse headache or sense of intense heaviness in the forehead or vertex, due to the toxic absorption from the infected sinus or sinuses. In most chronic cases these diffuse headaches occur daily, while the localised pain is often periodic and corresponding to exacerbations of the sinus infection, either from the exit of the discharge becoming blocked till the pressure of the increasing collection of muco-pus at length forces a passage and re-establishes a measure of drainage; or else it is due to climatic or general conditions, tending to increase the vitality and virulence of the infection—e.g., a chill, damp, sunless weather, or diminished resistance by the patient host.

PUS IN DISCHARGE IS NO CRITERION OF VIRULENCE OF INFECTION.

Let us now consider an aspect of nasal sinus infection which I feel is of very grave import in relation to general medicine. Headache, due to sinusitis, is most marked in the relatively acute or active sinus inflammations, in cases where the resulting muco-purulent discharge is most in evidence—that is to say, where polynuclear pus corpuscles are superabundant. But the more lavish the outpouring of pus corpuscles, the more active are the processes of inhibition or phagocytosis of the infecting organisms, and hence the less the toxic absorption. Conversely, given an infection of the nasal sinuses with but relatively weak inflammatory reaction and with a paucity of polynuclears, headache is less a dominating symptom, but the toxic absorption becomes more active, till we arrive at a large group of nasal sinusitis cases with but little purulent discharge to arrest attention, and no marked or localising headache to excite suspicion. If my contention is sound we see that so far from taking the amount of pus in a nasal discharge as the criterion of its virulence, the opposite rather holds true that, given an infection, the more the pus the less the toxic effect.

MENTAL SYMPTOMS OF SINUS INFECTIONS.

Let us apply the lesson to latent nasal sinus infection; far more important than the nasal catarrh, which is an inconvenience, is the toxæmia and consequent ill-health. The toxic absorption from nasal sinuses, which are closely related anatomically to the frontal cerebral lobes and the base of the brain as are the frontal sinuses, ethmoidal cells, and sphenoidal sinuses, seems to cause headaches by local absorption through the lymph-vascular communications with the cranial cavity, and the severe headaches are probably due to irritation of the meningeal branches of the fifth nerve. The most constant and characteristic mental symptoms of such sinus infections are periodic mental depression, inability to concentrate, and hence loss of memory for events of daily life; difficulty in reading, and in taking in what is read—to such an extent that the patient will find he has read a page or two of a book and not taken it in—inability to initiate conversation or even to write a letter are also found; so that patients feel so stupid that they avoid meeting strangers and even friends, as they "can't think of anything to say"; they

become taciturn, moody, and fitful in temper. Take, for example, a latent sinus case in a girl of 18 or 20; the parents may say that she gets moods and is difficult, but is all right when she takes an interest in things and thinks less of herself. The explanation is that when toxic absorption is marked she cannot interest herself, and cannot be bright and happy and full of life. All sinus infections are prone to be more active at the time of menstruation, which fact accounts for increased symptoms corresponding to the period in such cases. If the poisoning be continuous the patient is permanently altered in character, and in her outlook on life; she becomes a neurasthenic. Again, a business man who has been quick, mentally alert, and able to initiate and control a large business under similar conditions becomes neurasthenic, loses his initiative, feels he has to let things slide, worries over trifles, and becomes depressed.

Quite a large proportion of neurasthenic patients are puzzling unless one seeks and finds some definite cause of toxic absorption accounting for altered character and mentality. Such neurasthenic phenomena may be due to mental strain—e.g., at the front, in business, or from home anxieties—but I believe that many of these would not succumb were it not that toxic absorption rendered them susceptible to adverse environment. We all realise that the gastro-intestinal tract, pyorrhœa, or a weak heart action—e.g., that following diphtheria—may be the source of trouble. While not failing to look for such possible causes, let us remember that in the nasal sinuses, once persistent infection is established, the pyogenic organisms find a happy home and breeding ground; these infected sinuses become perfect physiological culture-tubes, maintained at blood heat with a never-failing pabulum.

Nor do the mental aberrations stop at neurasthenic symptoms, and slight alterations in character and mental alacrity. The depression that is so constant a manifestation of sinus infection may be so dominating as to cause melancholia and suicidal impulses, or mental delusions. The subjective foul odour that is a common symptom of antral and other sinus suppurations is an annoyance to the sane, but is probably one of the causes of olfactory illusion that the alienist accepts as a symptom of insanity.

CONCLUSION.

How are we to diagnose and at least be led to suspect nasal infection as the cause of such symptoms? The existence of a persistent or recurrent purulent catarrh may be obvious or elicited by inquiry, but the non-purulent discharge is apt to be ignored by the patient, and must be sought for. The neurasthenic symptoms are usually worse in the morning on waking, or for the first hour of two after rising; they are often periodic, and better in warm dry weather, worse in cold and damp, and always aggravated by intercurrent colds. But the history of the case may reveal many facts which point to a source of recurrent infection; headache or heaviness, recurring sore-throats, muscular rheumatism, rheumatoid arthritis, gastro-intestinal catarrh, appendicitis, are so frequently associated with a chronic sinus infection that their interdependence is sometimes hardly open to doubt. Although these incidents in the patient's life may have occurred long previously, one must remember that a sinus infection may be of some years' standing, and a constant source of ill-health, without seriously arresting the patient's notice. Often enough the existence of a latent nasal catarrh can only be determined by direct inspection of the nasal passages anteriorly and posteriorly, and perhaps only by passing a fine cannula into the sinuses, and washing out or sucking the contents back into a sterile syringe, and submitting them to bacteriological examination and culture. In many cases the health or happiness of the individual is at stake, and in the absence of other causes no stone should be left unturned to determine the existence or otherwise of a sinus infection.

THE SCHICK TEST

FOR THE DETERMINATION OF SUSCEPTIBILITY TO DIPHTHERIA: A RECORD OF 1200 CASES.[1]

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A STUDY of the tables and charts contained in the Metropolitan Asylums Board Report for 1919–20 would seem to indicate that there has been no decline in the incidence of diphtheria in London during the past 30 years. Reference to the annual report of the Chief Medical Officer to the Ministry of Health, 1919–20, p. 29, shows that the case rate for diphtheria per 1000 population, England and Wales, has remained stationary during the past decade. At present, however, there are indications that it may be possible to establish a system of active immunisation against diphtheria which, in time, will result in its final disappearance. Park and Zingher,[2] of the city of New York Health Department, as the result of experiments extending over several years, conclude that immunity to diphtheria, possibly life-long, can be obtained by injecting subjects with small doses of diphtheria toxin-antitoxin mixture. From the researches of Schick[1] and others it has been known for some time that certain individuals possess natural immunity to diphtheria by virtue of an antitoxin circulating in their blood serum. To attempt to immunise the entire population by toxin-antitoxin injections obviously is impossible. But if some method could be found which would enable one to distinguish the naturally immune from the non-immune, so that only the latter group need be immunised; further, if it could be shown that more than half the population do possess natural immunity, and that the majority of the non-immune were children, who could be conveniently immunised in batches—then a distinct advance would have been made towards the realisation of immunisation upon a large scale Such a method or test, a necessary step in the control of diphtheria, has been devised by Schick. He has found that the intracutaneous injection of a minute dose of diphtheria toxin is followed by a skin reaction if the person be not immune to diphtheria. If such person be immune, then there is no skin reaction; the antitoxin circulating in the blood serum of persons naturally immune neutralises the toxin injected into the skin, and nothing happens. If there is no antitoxin in the blood-serum the unneutralised toxin exerts an irritant action on the skin, producing the clinical sign known as the positive Schick reaction. This test is safe, for in my series of 1200 cases there was no single instance of sepsis, or untoward after-effect of any description; it is easy to perform; only a little practice being required to enable one to make intracutaneous injections with ease and facility. That the test is reliable I hope to demonstrate in the course of the paper. Results obtained in different series of tests will be found in papers indicated in the bibliography.

Method of Test and of Recording Results.

The toxin solution for the test was obtained from the Burroughs Wellcome Research Laboratories, London. It is sent out in sealed phials, each containing 1 c.cm. of diluted toxin. The dilution is 1 in 500 in 0·7 per cent. saline containing 0·5 per cent. phenol. It is made up fresh each week and tested each week on the skins of guinea-pigs. It is a ripened toxin, and standardised so that its minimum lethal dose (M.L.D.) is accurately known. The M.L.D. is that amount of toxin which, in four days, will kill a guinea-pig of 250 g. weight. The dilution is such that 0·2 c.cm. contains exactly one-fiftieth part of an M.L.D., and this is the amount used for one injection. The control injection was put up in similar sealed phials, marked to distinguish it from the toxin. The control is toxin heated to 75°C. for

[1] Abstract of a thesis submitted in May, 1821, for the degree of Doctor of Medicine at the Victoria University of Manchester.

10 minutes in order to destroy the active toxin, but not the protein constituents of the solution. The syringe used was all glass, 1 c.cm. in capacity, graduated into tenths. The needle was Burroughs Wellcome No. 1 dental needle, about 0·5 of a millimetre in diameter.

Technique.—In every case the injection was made into the right forearm, and a control injection into the left forearm. The skin of the anterior aspect of the forearm just below the elbow-joint was cleaned with ether. The needle and syringe having been boiled, the neck of the phial was broken off and the contents drawn up into the syringe. In order to make the skin taut, and thus facilitate intra- instead of sub-cutaneous injection, the arm was grasped from behind by the left hand, the thumb and fingers pulling backwards, thus putting the skin on the stretch. The needle, bevelled surface uppermost, was then thrust into the skin, until ¼ to ½ of an inch had passed in, care being taken so to guide it that the whole of the portion within the skin showed through the superficial epidermis as a blue line. The needle being in position within the skin, bevel uppermost, the left hand was brought round to steady the head of the needle, whilst with the right hand the piston was pressed home until just 0·2 c.cm. of toxin solution had been injected. The needle was then withdrawn, and the puncture immediately sealed with collodion and gauze. There was always a feeling of resistance when pressing down the piston, most pronounced in infants, possibly because of the more closely-set texture of their skin. When there were several tests to do in the same ward, the needle at this stage was disengaged from the nozzle of the syringe, placed in methylated spirit, a fresh sterile needle placed on the syringe, and the next 0·2 c.cm. injected into the next patient. This process was repeated until all the right arms of all the cases had been injected. Usually a dozen needles were in use, being transferred to methylated spirit, then syringed through with sterile water, ready to be used again. The left arms were then injected intracutaneously in the same manner with the heated toxin, or control solution. A different sterilised syringe was used, the needles boiled up again, and fresh methylated spirit and sterile water used, so that there was no possibility of any mixture, even in enormous dilution, of toxin solution with control solution.

When the injection was made, there immediately appeared a raised white urticarial area or wheal, one to two centimetres in diameter. In this the openings of the glands showed very distinctly. There is a momentary sensation of pain as the point of the needle enters the skin, and a slight burning sensation when the solution is injected. For some reason which I have not been able definitely to determine, the burning sensation was nearly always more pronounced in the case of the control injection into the left arm. This was so in my own case; some volunteered this information, and others gave it when asked which was the more painful injection. But, generally speaking, the injection is practically painless. Children up to the age of 9 or 10 often cried, but this was due to fear aroused by the sight of the needle more than to actual pain. Infants a few days old often evinced no displeasure. There was no sign of sepsis in any one of the 2400 injections. An important point is to make sure that there is no leakage, either below into the subcutaneous tissue, or externally on to the surface of the skin. This happened a few times, especially during the first injections, and in every case a fresh injection was made well away from the previous attempt. If the puncture is sealed with collodion and gauze this should be removed in two or three hours, otherwise a meshwork imprint is left on the skin, and this tends to obscure any reaction which may follow, especially if it be faint.

Record.—In every case the date of the test was marked on the patient's chart, and also the dates for taking readings at intervals of 24 hours, 72 hours, and 10 days. At each of these periods an inspection of each arm was made, and results noted on the back of the chart. In addition, special records were kept.

Readings.—I made an inspection of both arms of each case 24 hours, 72 hours, and 10 days after the test was made. Many cases were seen more frequently, a good number of especially interesting or anomalous cases every day for ten days, and again at varying intervals up to one month. In the vast majority the result of the test was evident when the 72 hours reading was taken, but in no case was the final result entered until after the ten days reading. Two patients left hospital before readings were completed, but came up on the tenth day for me to inspect their arms. The only exception to the above routine was made in the case of patients who died before the tenth day after the test. In all, eight patients died out of the number tested—four within three days of making the test, and these are not included in the series. Four died from three to eight days after the test; all were negative up to the time of death, and are included in the series.

The Positive Reaction.

At the site of injection the toxin arm presents the following appearance. In 24 hours there is an area very slightly raised and infiltrated. In colour it varies from a deep pink to a dark dusky crimson. In shape it is round or oval. The edge is distinctly, but not very sharply defined. The surrounding skin is usually normal; rarely there is a faint pink enclosing zone, which fades in the course of 24 or 48 hours. The diameter of the area varies from 10 to 30 mm., usually 15 to 25. Usually there is no pain, itching, or any feeling of discomfort. The reaction is at its height from 48 to 72 hours after the test. At this stage all the above features are unmistakably present. About the end of the first week the skin shows brown pigmentation and scaling. The scaling assumes all degrees of intensity, from a very fine powdery desquamation marking out the folds of the skin to massive exfoliation. In one of my cases (No. 628) the skin was detached in one piece the size of a sixpenny coin (20 mm. in diameter). Very occasionally scaling occurs as early as the third day, or may be delayed until the end of the second week. After the scaling is completed the brown pigmentation gradually disappears.

Variations in the Positive Reaction.

The foregoing is a description of the course and stages of a typical positive reaction. The following is an account of the main variations of the positive reaction observed in 1091 cases. In discussing the variations of the positive reaction, and in stating the respective percentage numbers, 109 cases which previously had diphtheria antitoxin are not taken into account. One effect of the previous administration of antitoxin is to abolish the positive reaction, hence a percentage based on a total which included the antitoxin cases would be misleading.

1. *Delayed Reactions.*—Schick[1] states that with occasional solutions of toxin, 48 hours have to elapse before a definite reaction occurs. In the present series, such cases numbered 154, or 14·1 per cent. They occurred in normal cases, and in every disease except puerperal fever, and with every batch of toxin; 147 were delayed one day, 6 delayed four days, and in one case (No. 230) five days elapsed before a positive reaction appeared. It afterwards went through the characteristic changes, the whole sequence being delayed five days. No feature about the case suggested any explanation of the anomaly. A consideration of the above group emphasises the necessity of waiting till all the readings have been taken before arriving at a definite conclusion as to the result of the test.

2. *Abnormal Pigmentation.*—In ten, or 0·9 per cent. of cases, a very marked purplish-red or dark plum colour developed. This abnormal pigmentation was not fully evident until the tenth day, except in one case when it appeared on the third day. Here the reaction was very intense, and accompanied by vesiculation. Four reactions were delayed one day in all cases of scarlet fever.

3. *Massive Scaling.*—This occurred in two cases. Both were children (females) with scarlet fever.

Different batches of toxin were used. In the more remarkable case the epidermis peeled off in one piece measuring 20 mm. in diameter.

4. *Vesiculation.*—This occurred in three cases on the third day. All were children, and cases of scarlet fever.

TABLE I.—*Results for 1091 Cases.*

The table shows the age-distribution of the positive reactions in 1091 cases—viz., scarlet fever, 650; typhoid fever, 13; puerperal fever, 28; erysipelas, 19; normal, 381.

Age in years.	Total	Pos.	Neg.	% Pos.	Age in years.	Total	Pos.	Neg.	% Pos.
0–1	20	6	14	30·0	6– 8	134	75	59	55·9
1–2	10	6	4	60·0	8–10	112	51	61	45·5
2–3	33	19	14	57·5	10–15	228	99	129	43·4
3–4	40	26	14	65·0	15–20	86	21	65	24·4
4–5	36	22	14	61·6	20 and over	335	136	199	40·6
5–6	57	31	26	54·3	Total	1091	492	599	45·09

Table I. shows the age-distribution of the positive reactions for 1091 cases. It will be seen that the greatest percentage of positive reactions occurs between the ages of 3 and 4 years—i.e., in the fourth year of life; that the second, third, fourth, and fifth years of life stand out from the other years; that the first year and the tenth year and over are below the average. The above figures afford important evidence of the reliability of the Schick test, for the age-groups which give the greatest number of positive reactions exactly coincide with the age-period when the incidence of clinical diphtheria is most marked. Ker[17] states that the disease is most frequent during the period from 2 to 5 years. In London, during 1919, the greatest number of diphtheria notifications were of children between the ages of 4 and 5 years.[18] In the annual report on the health of the City of Manchester for 1919,[19] a table is given which shows that the number of attacks is highest at the ages 3 to 5. Zingher[14] gives a table, which I reproduce, showing the age-incidence of 2711 cases of diphtheria admitted to Baginsky's Children's Hospital in Berlin between 1890-1897. (Table II.)

TABLE II.—*Age-Incidence of 2711 Cases of Diphtheria admitted to Baginsky's Children's Hospital, Berlin, 1890–1897.*

Age.	No. of cases.	Per cent. of total of cases.	No. of deaths.	Death-rate per 100 admissions.	Death-rate at each age-period.
0– 6 mths. ..	15	0·55	4	0·15	26·6
6–12 ,, ..	69	2·50	36	1·32	52·2
1– 2 years ..	227	8·30	110	4·06	48·4
2– 3 ,, ..	317	11·60	119	4·30	37·5
3– 4 ,, ..	354	13·05	121	4·40	34·2
4– 5 ,, ..	337	12·40	84	3·09	24·9
5– 6 ,, ..	264	9·70	61	2·25	23·1
6– 7 ,, ..	280	10·30	61	2·25	21·8
7– 8 ,, ..	209	7·70	26	0·95	12·4
8– 9 ,, ..	175	6·40	23	0·84	13·1
9–10 ,, ..	146	5·30	19	0·70	13·0
10–11 ,, ..	101	3·70	9	0·33	8·9
11–12 ,, ..	80	2·90	8	0·29	10·0
12–13 ,, ..	65	2·40	7	0·25	10·8
13–14 ,, ..	72	2·65	6	0·22	8·3
Total ..	2711	—	694	—	Av. 25·6

It will be seen that the greatest number of cases occurred from 2 to 5 years. I submit that the close agreement between the results of over 1000 tests and the statistics relating to the age-incidence of diphtheria sufficiently demonstrates the reliability of the Schick test.

The Pseudo-Reaction.

Schick[1] described an inflammatory reaction not due to diphtheria toxin and differing from the reaction caused by it. He ascribed it to a hypersensibility of the person in question to protein substances in the solution of diphtheria toxin. Zingher[13] states: "The pseudo-reaction depends on a hypersusceptibility of the tissue cells of individuals to the autolysed protein of the diphtheria bacillus which is present in the toxin broth used for the test. The reaction is, therefore, of the nature of a local anaphylactic response." The pseudo-reaction is clinically differentiated from the positive reaction by the following features: it reaches a maximum in 20 or 30 hours; it begins to fade before 48 hours; it may occasionally leave faint pigmentation and occasionally scales; its colour is a more vivid red; the skin is more infiltrated; there is often a well-marked pink zone round it. To sum up, it is a transient inflammatory reaction as compared with a persistent specific reaction. It occurs comparatively frequently in adults, more rarely in children. It may be combined with a positive reaction.

In every case in this series a control injection of heated toxin was made into the left arm. Heating the toxin to 75° C. for 10 minutes destroys the toxin content, but leaves unaffected the protein content. Hence in every case the right arm was injected with toxin plus protein, the left arm with protein only. Any reaction in the left, or control, arm must be due to protein only; a reaction in the right arm may be due to toxin or protein alone or to toxin plus protein. Hence a reaction in both arms indicated a pseudo-reaction. In order to see whether this was combined with a positive reaction it was necessary to wait one or two days. In the case of a pseudo-reaction only the reaction would fade equally from both arms. In the case of a combined positive and pseudo-reaction the left or control arm would clear up quickly, while the right or toxin arm would pass through the characteristic stages of the positive reaction. (It is possible after some experience with the test to differentiate the two reactions without using a control, but it is always safer to use one.) With a negative reaction nothing is visible after 24 hours, except perhaps an ill-defined red line marking the needle track.

Variations in the Pseudo-Reaction.

1. *Persistent Pseudo-reactions.*—One of the distinguishing features about the pseudo-reaction is its rapid disappearance in three or four days. Out of a total of 222 pseudo-reactions (including the diphtheria cases) 10, or 4·5 per cent., persisted for longer than a week; the 263 batch of toxin was used in each case and all results were negative. (Table III.)

TABLE III.

No.	Sex.	Age.	Disease.	No.	Sex.	Age.	Disease.
241	F	10	Scarlet fever.	301	M	22	Typhoid.
260	F	30		303	M	16	Nil.
270	F	31		304	M	40	Typhoid.
293	F	22	Puerperal fever.	305	M	55	Nil.
296	F	21	Typhoid.	310	F	17	Erysipelas.

Laboratory tests with batch 263 did not reveal any difference between this and the other 14 batches used.

2. *Scaling Pseudo-reactions.*—Out of 222 pseudo-reactions, 15, or 6·7 per cent., showed definite scaling. This anomaly might easily lead to confusion between a pseudo-reaction and a true reaction if toxin only and not control also were used in the test.

The following comparison is intended to show the differences between the true and the pseudo-reaction.

True (or Positive) Reaction.	*Pseudo-reaction.*
1. Colour: medium to dark red.	1. Colour: brighter red.
2. Size: usually 15–25 mm. in diameter.	2. Size: usually more than 25 mm. in diameter.
3. Areola: seldom present.	3. Areola: often marked.
4. Infiltration: slight.	4. Infiltration: more marked.
5. Height of reaction: third day.	5. Height of reaction: 20 to 30 hours.
6. Fades slowly, with pigmentation and scaling at tenth day.	6. Fades quickly; rarely pigmentation or scaling; usually little or no trace after three or four days.

Effect of Age and Disease on the Pseudo-Reaction.

Table IV. shows all the cases except diphtheria, arranged to show the influence of age and disease on the pseudo-reaction.

TABLE IV.

Age in years.	Scarlet fever. Total No.	Ps.	% Ps.	Normal. No.	Ps.	% Ps.	Erysipelas, puerperal and typhoid fevers. No.	Ps.	% Ps.
0– 1 ..	2	0	0·0	18	2	11·1	—	—	—
1– 2 ..	6	0	0·0	4	0	0·0	—	—	—
2– 3 ..	28	2	7·1	5	1	20·0	—	—	—
3– 4 ..	40	2	5·0	—	—	—	—	—	—
4– 5 ..	30	5	16·6	6	0	0·0	—	—	—
5– 6 ..	54	5	9·2	3	0	0·0	—	—	—
6– 8 ..	123	15	12·1	11	0	0·0	—	—	—
8–10 ..	98	9	9·1	14	0	0·0	—	—	—
10–15 ..	152	13	8·5	75	5	6·6	1	0	0·0
15–20 ..	47	3	6·3	30	4	13·3	9	1	11·1
20 and over	70	7	10·0	215	56	26·0	50	9	18·0
Total	650	61	9·38	381	68	17·84	60	10	16·66

Ps. = Pseudo.

As regards age, the result is as follows:—

	Cases.	Pseudo.	% Pseudo.
Total below 15 years ..	670	59	8·8
Total 15 years and over	421	80	19·0
Totals	1091	139	12·7

It will be seen that the percentage of pseudo-reactions above the age of 15 years is more than twice that under 15 years.

The following is the summary with regard to health and disease:—

	Cases.	Pseudo.	% Pseudo.
Normal	381	68	17·8
All diseases ..	710	71	10·0
Totals ..	1091	139	12·7

The pseudo-reaction occurs nearly twice as often among normal cases as among those with enteric fever, erysipelas, puerperal fever, and scarlet fever taken as a whole.

Scarlet Fever Cases.

Among 650 scarlet fever cases, the positive percentage curve closely followed that for the 1091 combined cases, but the total percentage was slightly higher—viz., 47·38 as against 45·09. The cases are sufficiently numerous to warrant the suggestion that scarlet fever tends, very slightly, to increase susceptibility to diphtheria. The "pseudo" rate was 9·38 per cent. Eleven cases had doses of antistreptococcic serum, varying from 40 to 280 c.cm., before the test was made. Of the 11, only one was positive, giving a percentage rate of 9·09, or less than one-fifth that of the total scarlet rate. The numbers are too few to warrant one making any definite statement, but there is a suggestion that the previous administration of antistreptococcic serum tends to inhibit the development of a positive Schick reaction. Three cases out of the eleven, or 27·27 per cent. gave a pseudo-reaction, and this is three times the total scarlet fever pseudo percentage rate. Later it will be pointed out that the previous administration of anti-diphtheritic serum greatly increases the percentage of pseudo-reaction in the Schick test, and should further experiments establish the same conclusion in the case of anti-streptococcic serum, it would be reasonable to assume that in both cases the phenomenon is in the nature of a local anaphylactic response, to a foreign protein, of tissue cells previously super-sensitised likewise by a foreign protein.

Effect of Toxæmia on the Schick Test.

Twenty-one of the 650 cases, or 3·2 per cent., were examples of "scarlatina anginosa," and markedly toxic. Four were positive, giving a percentage of 19·0, as compared with the total scarlet fever average of 47·38. Among these 21 cases, therefore, there is a marked depression of the positive percentage rate, and this agrees with the statement of Schick[1] that toxic individuals tend to give a negative reaction. Four cases, or 19·0 per cent., gave a pseudo-reaction, and three of them had anti-streptococcic serum.

Typhoid Fever, Puerperal Fever, and Erysipelas.

The following numbers were tested:—

	Cases.	% Pos.	% Pseudo.
Typhoid	13	15·38	30·76
Puerperal fever	28	17·85	3·57
Erysipelas ..	19	26·31	26·31

An analysis discloses certain suggestive features.

Typhoid Fever.—The outstanding feature is the high percentage of pseudo-reactions. Four cases out of 13, or 30·7 per cent., gave a pseudo-reaction. Further research will show whether this is a coincidence or a permanent feature. There were no combined reactions.

Puerperal Fever.—Of 28 cases, only one, or 3·5 per cent., gave a pseudo-reaction. Further, of 17 cases which had antistreptococcic serum, not one gave a pseudo-reaction. This is the reverse of the tendency exhibited by the scarlet fever cases which had anti-streptococcic serum. A possible explanation lies in the fact that most of these cases had suffered from uterine hæmorrhage, often severe, for several days before admission, and at the time the test was performed were in an anæmic, asthenic condition. Their tissue cells, therefore, were to some extent devitalised and not so liable to react to the injection of a foreign protein substance.

Erysipelas.—These cases show an identical positive rate and pseudo rate. Taking the positive percentages, that of erysipelas considerably exceeds the other two diseases. So far as the numbers go, then, there is an indication of a high pseudo-reaction rate among cases of enteric fever and erysipelas, and a low rate with cases of puerperal fever.

Normal Cases.

It was extremely difficult to obtain normal children below the age of 10 years upon whom to perform the test. For infants I had to depend upon the babies who were admitted along with mothers suffering from puerperal fever. A few normal children from 6 months to 2 years were found among child welfare cases in the hospital creche; to these were added several instances of healthy children admitted to hospital as cases of scarlet fever or diphtheria. Permission, unfortunately, could not be obtained to do the test in schools where there is plenty of material. Among 381 normal cases, the total positive percentage rate was 45·14, and the pseudo rate 18·37. The greatest number of positives was found between the ages 1–10 years, and the greatest number of pseudo reactions at 20 years and over.

Influence of Vaccines on the Test.

Nineteen of the cases had been vaccinated (Table V.).

TABLE V.

Case No.	Sex.	Age	Vaccine.	Result.	Case No.	Sex.	Age.	Vaccine.	Result.
216	M	32	Ty.	P. (¶ ps. 24 hrs.)	631	F	21	Ty.	N.
					699	F	24	,,	P.
316	F	20	,,	N. ps.	700	F	20	,,	N. ps.
380	F	26	,,	P. (¶ ps. 24 hrs.)	704	F	25	,,	P. ps.
					771	F	22	,,	N. ps.
422	F	20	,,	N. ps.	780	F	27	,,	P.
458	F	21	,,	N. ps.	782	F	23	,,	P.
460	F	21	,,	N. ps.	783	F	21	,,	N.
462	M	26	Dy.	P. ps.	786	F	24	,,	P.
467	F	23	Ty.	N. ps.	814	F	20	,,	N.
619	F	24	,,	N.					

Ty. = typhoid. Dy. = dysentery. P. = Positive. N. = negative. ps. = pseudo.

The positive percentage rate is 42·1, and the pseudo-reaction percentage rate is 47·3. Compared with the combined normal and disease ratio, there is nearly a five-fold increase in the pseudo-reaction percentage. This very strongly suggests that the effect of vaccines on the test is to raise markedly the pseudo-reaction percentage. Again, this effect is probably due to super-sensitisation by foreign protein.

The Test in Infancy.

Sixteen children under 6 months gave the result:—

	Total.	Pos.	Neg.	% pos.	Pseudo. Total.	%
0–6 mths.	16 ..	3 ..	13 ..	18·7	2	12·5

Among 14 cases under 5 months, there was only one, or 7·1 per cent., positive. The mother of this case was also positive. Thus infancy diminishes both the positive and the pseudo-reaction percentages.

The Test and Diphtheria Antitoxic Serum.

One hundred and nine cases had injections of diphtheria antitoxic serum before the test, viz :—

Diphtheria	85
Scarlet fever, and diphtheria plus scarlet fever	18
Normal	6

These cases showed a very high percentage of pseudo-reactions : 83 out of 109 cases, or 76·14 per cent., gave the reaction. The protein in the serum solution had apparently sensitised the individuals, and rendered them hyper-susceptible to the protein in the toxin solution. The first positive reaction, indicating loss of immunity, occurred in the third week. No final conclusion can be drawn from the number tested, but there is an indication that, by means of the Schick test, it would be possible to demonstrate that the larger the quantity of antitoxin given, the longer would be the duration of immunity (Table VI.).

Effect of Diphtheria Antitoxin given after the Test.—Diphtheria antitoxin was given subsequent to the performance of the test in one instance. This patient received 8000 units 24 hours after the test. No impression was made on the definite positive reaction which had by that time developed.

For some months past I have been immunising the nursing staff of the Monsall Hospital with toxin-antitoxin mixture, and I hope to submit a paper on the subject when a sufficient number of cases has been collected.

For permission to publish the results, I am indebted to Dr. James Niven, medical officer of health for Manchester, at whose instigation the work was undertaken ; my thanks are also due to Dr. William Park, of the New York Health Department ; to Dr. R. A. O'Brien, of the Wellcome Research Laboratories ; to Dr. C. B. Ker, of the City Fever Hospital, Edinburgh, for letters of advice and help ; and to the committee of the Manchester and Salford Boys' and Girls' Refuges, for permission to perform the test upon members of their orphanage.

TABLE VI.

Cases which had diphtheria antitoxin arranged to show duration of immunity. The first column shows the interval of time in weeks between the administration of diphtheria antitoxin and the test with toxin.

Thousand units.	2		4		8		10		12		16		18		20		Over 20		Total	% pos.
No. of cases.	3		3		48		5		18		22		2		3		5		109	
Interval in weeks.	P.	N.	P.	N.	P.	N.	P.	N.	P.	N.	P.	N.	P.	N.	P.	N.	P.	N.		
1	—	—	—	—	—	7	—	1	—	5	—	5	—	—	—	1	—	—	19	0
2	—	1	—	2	—	12	—	—	—	1	—	2	—	—	—	—	—	—	18	0
3	—	1	—	—	1	7*	—	—	—	1	—	4	—	1	—	—	—	1	16	6
4	—	—	—	—	—	1	—	1	—	3	—	4	—	—	—	—	—	1	10	0
5	—	—	—	—	—	4*	—	2	—	1	—	2*	—	—	—	1	—	—	10	0
6	—	—	—	—	—	2*	—	—	—	1*	—	1	—	1	—	—	—	2	7	0
7	—	—	—	—	1	2	—	—	—	1	—	1	—	—	—	1	—	—	6	16
8	—	—	—	—	—	3	—	—	—	2	—	1	—	—	—	—	—	—	6	0
9	1	—	—	—	—	2	—	—	—	2	—	1	—	—	—	—	—	—	6	16
10	—	—	—	—	—	—	—	—	—	—	1	—	—	—	—	—	1	—	2	100
11 and over	—	—	1	—	5	1	—	1	—	1	—	—	—	—	—	—	—	—	9	66
Per cent. pos.	33		33		14		0		0		4		0		0		20			

P = positive reaction. N = negative reaction. * = 1 case doubtful.

Effect of Consanguinity on the Test.—Excluding the diphtheria cases, 84 family groups were tested, as follows :—

Two in a family	74 groups.	Five in a family	1 group.
Three ,, ,,	8 ,,	Eight ,, ,,	1 ,,

The results were :—

Total.			Pseudo.		
Like	60 = 71·4 %	....	Like	4 = 28·5 %	
Unlike	24 = 28·5 %	....	Unlike	10 = 71·4 %	

(A like pseudo-reaction means that all the members of the family gave a pseudo-reaction, irrespective of their agreement or otherwise in the positive test. Conversely, they might all have given the same positive test, but one has given a pseudo-reaction, and the others not, in which case they are classed as " unlike " for the pseudo-reaction section.) From this one may deduce that members of the same family tend to give the same positive or negative reaction, but do not agree in their pseudo-reactions. Zingher[16] came to the same conclusion after an analysis of 93 groups.

Cases Re-tested.—Fourteen cases out of the total of 1200 were re-tested at intervals varying from 3 to 75 days. Some were borderline cases, and in nearly every instance the different readings for the first test agreed with the corresponding readings for the subsequent test. The final results were always the same.

Duration of Potency of Toxin.—With five of the cases re-tested a batch of toxin was used which had been kept on ice for five months. The results agreed with those obtained by the fresh toxin, except that in one or two cases the positive reactions were very slightly fainter, and the pigmentation did not last quite so long. A possible explanation of this is that the minute amount of toxin in the test dose is enough to produce a slight increase in the patients' immunity, and cause the just perceptible decrease in intensity of the second series of reactions.

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SOME VARIETIES OF TRAUMATIC AND TOXIC ULNAR NEURITIS.

(A paper read before the Section of Neurology of the Royal Society of Medicine on Feb. 9th, 1922.)

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THE ulnar nerve has received its due share of attention during recent years in connexion with direct injuries from wounds of the upper limb, and it is not my purpose to deal with ulnar injuries of this kind to-night. Your attention will be invited to cases of ulnar neuritis in which trauma is an important but generally speaking not an acute factor in its production.

Various excuses can be offered for bringing before the members of this Section the subject of ulnar neuritis of traumatic or toxic origin. In the first place, experience has taught me that lesions of the ulnar nerve are not infrequently mistaken for other conditions, and that disturbances of motor and sensory function in the hand and arm are sometimes attributed to the presence of a cervical rib or to a progressive spinal cord disease when some condition of the ulnar nerve is really to blame. In the second place, there are questions concerning the ætiology of ulnar neuritis which call for discussion especially in regard to the anatomical and mechanical factors which may play a part in its production. In the third place, I am anxious to provoke surgeons who have had experience of operating for local lesions of the ulnar nerve to express their views as to the relative merits of various procedures.

My interest in the ulnar nerve was first excited in a very personal manner about 25 years ago. Having succeeded during the course of a hospital football match in fracturing one of my collar bones, my arm was duly fastened to my chest in a position of extreme flexion at the elbow with results which still live vividly in my memory. After a very few hours I began to experience discomfort and rapidly gained a knowledge of the sensory distribution of the ulnar nerve of a much more exact nature than that which had sufficed for the first M.B. examination I had recently passed. At the end of a couple of days the pain and paræsthesia were so intense that I was obliged to beg for the release of my arm from its fixed position. It is quite true that many persons are able to submit to the same procedure without experiencing any discomfort, and it would seem that some anatomical peculiarity was responsible for my distress. At the same time this peculiarity is shared by a good many people, some of whom complain that if they sleep with an arm flexed they are liable to wake with paræsthesia referred to the distribution of the ulnar nerve.

Neuritis with no Obvious Anatomical Feature.

With this introduction I may refer at once to the first group of cases of ulnar neuritis to which I would like to draw your attention. In this group there is no obvious anatomical feature which can be regarded as a factor in the production of the neuritis. Examination of the nerve at the elbow does not reveal any abnormality in regard to its relations with bony structures and it lies well protected in the ulnar groove. Under these circumstances the complaint may be limited to a transient disturbance of function as a result of the excessive use of the hand and arm in a flexed position. A good example of this was the case of a lady, 33 years of age, who complained of complete failure of function on the part of the two ulnar fingers of the left hand occurring on several occasions at the end of a long 'cello recital. She had played the 'cello since she was 5 years of age and had recently indulged in what may be regarded as excessive hours of practice. But it is possible to produce more permanent ulnar disturbances by excessive use of an arm, as in the case of a man who came to me complaining of numbness in the ulnar fingers of the right hand and slight pain in the region of the elbow. On examination there was found some loss of epicritic sensibility in the ulnar distribution and slight atrophy and weakness of the ulnar muscles including flexor carpi ulnaris. At the elbow the nerve seemed to be in good position and the only abnormality found was slight tenderness just below its exit from the ulnar groove. This condition had apparently been produced by a long spell of fishing with a heavy salmon rod, and any attempt at using a rod or a tennis racket sufficed to renew the pain and was attended with difficulty in maintaining a proper grasp.

Even less violent exertions may sometimes end in a similar condition. For instance, a lady, 43 years of age, complained that for three weeks she had had difficulty in using her right hand and was conscious of a pain like a sting in the ulnar border of the palm and in the two ulnar fingers. The ulnar muscles were obviously weak, but showed very little atrophy, and no definite sensory loss could be detected. The only ætiological factor which I could discover in her case was a period of excessive use of the hand in sewing and writing.

Cases with an Additional Toxic Factor.

Closely allied to the group I have just described is another in which it is possible to find an additional ætiological factor in the form of some toxic agent. In these cases, again, no anatomical abnormalities can be detected, and the most characteristic feature of this form of ulnar neuritis is its onset, while the patient is confined to bed with some infective or septic illness. I saw quite a number of cases of this description during the war, especially among soldiers confined to bed with severe compound fractures and subsequent prolonged sepsis.

Captain G. M., aged 21, sustained a wound of the right leg, which was amputated. He was laid up for three months in bed with septic complications, and after about two or three weeks noticed increasing numbness and soreness in the ulnar fingers of both hands. The right hand recovered in the course of five weeks, but the left hand showed atrophic palsy of the ulnar muscles with some sensory impairment in the ulnar cutaneous area.

I am inclined to attribute the ulnar neuritis in these cases partly to the fact that the arms are constantly being used in the flexed position, partly perhaps to an undue amount of friction, and partly to the effect of some toxic agent. In civilian life I have seen a precisely similar condition arising bilaterally in a patient who had been in bed for a fortnight with a slight attack of small-pox. All the cases of this kind which I have come across have made a good recovery. Perhaps one ought to include in this group the occasional case of ulnar neuritis associated with glycosuria and others in which the only ætiological factor of importance appears to be the gouty diathesis. An interesting example of the latter was a patient, aged 61, who came to me complaining of pain in the ulnar fingers and ulnar aspect of the left hand which had come on suddenly eight months previously after sitting out one evening in the garden. I found definite, but slight, wasting of the ulnar muscles and slight impairment of sensibility in the ulnar area. He suffered from gouty eczema, a gouty big toe, and presented gouty deposits in the lobe of the left ear.

Cases with Some Anatomical Peculiarity.

My third group of cases comprises those in which some anatomical peculiarity can be discovered in connexion with the relations of the nerve at the elbow. These cases may be subdivided into: (1) those with a history of severe injury to the elbow; (2) those without any history of trauma.

1. It has long been recognised that ulnar neuritis may develop many years after an injury to the elbow and this condition has been ascribed to involvement of the nerve in callus or in fibrous adhesions. I have seen a number of cases of this kind and the outstanding feature has always been the unprotected position of the nerve at the elbow. It would seem that in these cases the nerve is constantly exposed to minor insults and injuries, each one of which may produce very little

immediate effect but which in the aggregate lead to the formation of a fibrous neuroma. This neuroma is generally a fusiform swelling of the nerve due to a large increase of its connective tissue elements. I have never found any evidence of bony pressure, and fibrous adhesions to neighbouring structures are rarely prominent. On the other hand, some fibrous constriction of the nerve is not very uncommon.

Mr. A., aged 45, consulted me on account of numbness of the right little finger and gradual wasting of the right hand over a period of two and a half years. It appeared that his right elbow had been severely broken when he was 13 years of age, and on examination I found a large diffuse neuroma involving the ulnar nerve which lay in an exposed position at the elbow. The muscles supplied by the ulnar nerve were all wasted, but there was very little disturbance of sensibility. It was ascertained that for some years he had been in the habit of carrying a heavy bag with his right hand and his employment had also necessitated a good deal of writing. At my request Mr. J. E. Adams operated in June, 1917, and found the nerve flattened out and unprotected by any parapet of bone. It was involved at the point of the elbow in a considerable amount of connective tissue which formed a constricting band. Mr. Adams was content with dividing the connective tissue by some longitudinal incisions with the result that the patient no longer complains of numbness, finds his hand much more useful, but has not regained all the muscular tissue which he had lost.

In the light of further experience in these cases I am inclined to think that perhaps a better result might have been obtained if in addition to releasing the nerve from constriction by connective tissue it had been placed in front of the elbow.

Mrs. O., aged 30, gave me a history that two and a half years before our interview she had sustained a violent blow on the right elbow with a tennis racket and that some months later she began to find slight difficulty with her right hand. She was unable to play tennis or use the arm in any strenuous way during the following summer. She complained of pain in the elbow even when writing or using a needle, and I found the nerve at the elbow very easily displaced and over-exposed. It was tender on palpation and there was some impairment of sensibility in its distribution. Mr. Wilfred Trotter placed this nerve in front of the joint in March, 1920, with the result that the patient is now able to use her hand and arm without any discomfort or disability.

Mrs. R., aged 52, gave a history of numbness in the two ulnar fingers of the right hand over a period of eight months. On examination I found the right ulnar nerve displaced from its groove on to the inner aspect of the condyle, quite exposed, thickened, and fusiform. The ulnar muscles were atrophied and definite impairment of sensibility was detected.

In this case there was a history of injury to the right elbow at 3 years of age, nearly 50 years before the onset of symptoms.

Mrs. S., aged 45, gave a five years' history of wasting and weakness of the left hand with slight pain at the left elbow and in the ulnar side of the hand. She displayed almost complete ulnar palsy as regards the intrinsic hand muscles and some weakness of flexor carpi ulnaris. There was only slight sensory disturbance. The nerve at the elbow was thickened and exposed. In this case there was a history of fracture of the left arm at the elbow 42 years previously. Mr. Trotter operated and found a spindle-shaped neuroma of the nerve at the elbow, and contented himself with transposing it in front of the joint.

2. There appear to be a number of people whom Nature has treated rather shabbily in regard to protection of the ulnar nerve at the elbow. The groove is found to be very shallow, and when the elbow is passively flexed the nerve can be felt to slip out of its groove and to lie in an exposed position over the inner condyle. These people may escape from any serious consequences of their anatomical peculiarity unless circumstances necessitate a more or less strenuous and continued employment of their arms.

A very good example of this type of case was provided by a man of 46 who was sent to me complaining of weakness and wasting in the left hand and with a sensation of numbness on its ulnar side during a period of about four months. On examination I found a very poor ulnar groove and a large thickened nerve easily palpable on the surface of the bone; there was almost complete atrophic palsy of the ulnar muscles, including flexor carpi ulnaris, and partial sensory loss in the ulnar distribution.

The chief exciting factor in this case appeared to be the fact that the patient spent his time driving a two-horse van with his left arm. A possible accessory factor may have been a somewhat excessive consumption of beer. Mr. P. Sargent operated on this patient and found a fusiform swelling involving the whole thickness of the nerve for about three quarters of an inch. Below this neuroma the nerve passed beneath a dense fibrous archway which constricted it.

I have seen many other cases of this kind, and a particularly interesting example was the following:—

A platelayer was in the habit of swinging a heavy hammer impartially with both arms. When I saw him he was complaining of atrophy and weakness of the muscles of both hands characteristic of an ulnar lesion. Both ulnar nerves were unusually unprotected and mobile at the bend of the elbows and each exhibited a large diffuse neuroma.

This case afforded a good example of difficulty in diagnosis in that he complained of no pain and but little paræsthesia in his hands. Except for the limitation of the atrophy to the muscles supplied by both ulnar nerves he would have passed for a case of progressive muscular atrophy, the diagnosis with which he arrived in my out-patient room. It is worthy of note that the sensory disturbance in these patients varies very much, but on the whole is less severe than the motor palsy and muscular atrophy. A rare exception to this rule was provided by a lady whose chief complaint was pain with all the characteristics of causalgia and whose suffering was not relieved by transplanting the nerve in front of the elbow. Her case was certainly complicated by symptoms of mental origin which ultimately yielded to the combined effects of an injection of alcohol into the nerve and psychotherapy.

Differential Diagnosis.

A careful examination should suffice in all cases to distinguish an ulnar palsy from a spinal cord lesion in the form of progressive muscular atrophy or syringomyelia. On the other hand, so much attention has been paid in recent years to the presence of cervical ribs and the interesting clinical phenomena to which they give rise that cases of the kind I have been describing are not infrequently sent for X ray examination on the suspicion that a supernumerary rib may be held responsible for the disability. That such a procedure may give rise to confusion rather than to help in diagnosis is well illustrated by a patient whom I saw two or three years ago and who was ultimately operated on by my colleague, Mr. Cyril Nitch.

He was a man, 40 years of age, who, seven years before he came under observation, fell off a motor bicycle and injured his right elbow. He was told that there was no fracture of the bone, but the joint was painful for several weeks and for some time he was unable to straighten his arm. He made a complete recovery, but six or seven years later he noticed wasting of some of his right hand muscles and he felt an occasional tingling over the ulnar side of his hand on straightening his arm. This wasting was preceded for a time by a condition of cramp in his fingers when he was writing. On examination there was distinct wasting of the first dorsal interosseous muscle and epicritic sensibility over the ulnar border of the hand was diminished. The ulnar nerve at the bend of the elbow was freely movable and not obviously thickened. This patient had both his elbow and neck X rayed. The skiagram of the elbow showed an old fracture of the external condyle with downward displacement, but no signs of injury to the internal condyle. The skiagram of the neck revealed a well-developed seventh cervical transverse process on each side and a rudimentary cervical rib on the right. The motor and sensory disturbance in the hand determined the diagnosis in spite of the cervical rib, and Mr. Nitch exposed the ulnar nerve at the back of the elbow. It was much thickened by scar tissue in the groove behind the internal condyle and was bound down to the latter by firm adhesions attached to its sheath. On palpation the nerve felt tough and fibrous. It was lifted from its bed after dividing the fascia uniting the two heads of flexor carpi ulnaris and was displaced forwards in front of the internal condyle and kept in position by a graft of subcutaneous fat. Within a few weeks the patient had lost all sensory disturbance, and he returned to his work in the East with the intention of continuing electrical treatment to the wasted muscles.

The number of cases which I have very briefly outlined suggests that the ulnar nerve is particularly prone to disturbances of function on what appear to be at first sight slight provocations. Looking for a common

factor in these various groups one is struck by the fact that in the majority of cases the ulnar nerve is unprotected by any bony parapet at the bend of the elbow, or so badly protected that during extension and flexion of that joint it is apt to slip in and out of its proper position. During flexion especially it may lie exposed to friction and pressure on the internal condyle. A consideration of many cases seems to justify the conclusion that movement, especially of a strenuous and frequently repeated character, is an important factor in the production of an interstitial neuritis. This moving contact with a bony surface is probably an important factor in producing the symptoms associated with a cervical rib, although I do not think it has been shown that in the latter case the nervous tissue becomes surrounded by a definite thickening of connective tissue. In the case of the ulnar nerve, however, the nervous tissue is constantly exposed to minor injuries, and the neuromatous condition so often found must be ascribed to chronic inflammation of traumatic origin. It is a little difficult to understand why the flexed position of the elbow should in itself give rise to discomfort referred to the distribution of the ulnar nerve, as I believe there is no evidence to show that the nerve is stretched by that posture of the limb.

Finally, it would be instructive to learn the views of members of this Section in regard to the best procedure in connexion with these cases of traumatic neuritis. I have seen fairly good results from merely dividing the connective tissue strands by means of longitudinal incisions, but I have become still more impressed with the advantages of placing the nerve in front of the joint and so ensuring its complete relaxation. Possibly a combination of both measures may be the ideal treatment.

HEREDITARY PERFORATING ULCER OF THE FOOT.

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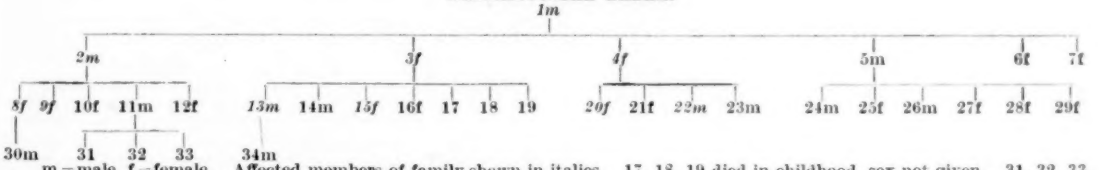
IN November, 1920, a woman (15)[1] came under my observation suffering from a perforating ulcer of the foot, a condition which she said was hereditary in her family. The following description is based chiefly on personal examination, partly on reference to hospital records.

The disease occurs in a family of which all the members were born in London and live in London, with two exceptions, one living at Exeter and the other in Canada. There are 34 members spread over four generations, including ten who suffer from the disease. The cardinal symptoms are perforating ulcers of the feet, shooting pains about the body, and deafness. The condition is very nearly similar in all the patients, so that it is easy to describe a common type of the disease. The affected members of the first and second generations are dead, and there are no medical records of the last years of their lives; those of the third generation have not yet progressed far, so that the picture of the later stages is not very definite. None of the fourth generation is affected, but they have not yet reached the age at which the disease appears.

GENEALOGICAL TABLE.



m = male, f = female. Affected members of family shown in italics. 17, 18, 19 died in childhood, sex not given. 31, 32, 33, sex not given.

Age of Onset.—The first symptoms appear in early adult life; the ages recorded are "about 15 (?)," 22, 24, 31, 33, 35, 36.

Sex.—There are four males and six females.

Etiology.—No cause is evident. The first sufferer was a doll-maker, and attributed his illness to his working in white lead. The disease is transmitted by both sexes.

Symptoms and Signs.—The first symptom complained of in all cases but one is a corn, appearing first in the big toe. After a few months the thickened skin comes off and reveals an ulcer with indurated edges and purulent discharge. Soon this extends to the bone, and small pieces of bare bone are set free. There is usually no pain. Under treatment for some months the ulcer heals, but soon breaks down again, and so a process of ulceration and healing goes on for the rest of the patient's life. The process affects other toes and bones of the feet, and finally there is considerable deformity. The toes are shortened, and become flexible from loss of the phalanges, and are distorted from the normal position. In later stages the whole foot is described by relations as being shortened, but these patients are all dead, so that I have not seen them to verify the condition. Probably the tarsals and metatarsals are affected.

There is now a pause before the other symptoms appear. During this time there is little interference with the patient's life. Sometimes he suffers discomfort, or even actual pain, so that he is unable to walk about freely, but more often his life is quite normal except for the irksome necessity of repeated treatment to his feet. After an interval varying from a few months to several years, he suffers from shooting pains which may attack any part of the body. The legs and shoulders are most affected, and sometimes the head. Each pain is of very short duration, so that it has been diagnosed as the lightning pain of tabes dorsalis. The skin is tender to gentle pressure, but one patient (15) says that she obtains relief by firmly grasping and squeezing the affected area. The pain is often very severe. The children of the original sufferer (1) say that they knew when he was returning from work because they could hear his groans when he was still some distance away. At about the same time as the onset of the pains the patient begins to suffer from deafness. This is bilateral, and slowly progressive without remission, so that the patient is said to become finally completely deaf.

If the patient is examined a few years after the beginning of the disease the most striking feature is the ulceration of the foot. Its position may be on any of the toes, but most often on the great toe, and generally below the head of the metatarsal bone, or on its inner side. The ulcer has thickened irregular edges; the discharge is purulent; bare bone may be visible in its floor, or may be felt with a probe. The surrounding area is red and swollen, and swelling may extend up the lower part of the leg. The ulcer itself is painless, but suppuration may spread into the surrounding tissues, and these may be tender.

The reflexes of the lower limbs are lost. The ankle-jerks disappear first, later the knee-jerks. In no case which I have examined have I been able to obtain a plantar response. The abdominal reflexes are preserved, at any rate in the earlier stages. The reflexes of the arm are normal. The pupils always react to light and accommodation.

[1] Numbers in parentheses refer to the patient's number in the genealogical table.

The cranial nerves, with the exception of the auditory nerve, are normal. There is no nystagmus. The fundi are normal. The hearing of one patient (20) has been examined by Mr. C. E. West, aural surgeon to St. Bartholomew's Hospital. He says that his findings were the same as in cases of primary cochlear degeneration. In another case (9), also examined at St. Bartholomew's Hospital, there was an accumulation of wax sufficient to account for the deafness.

Sensation in the arms is normal. If the sensation of the feet and legs is tested when the acute condition has subsided definite changes are found. At first tactile sensation is lost over the first toe and interdigital cleft. The sensations of pain and heat and cold are lost over a rather larger area, so that there is definite dissociative anæsthesia. These changes must be confined to the feet for some years, because in only one of the patients I have examined has it been more extensive. This was a woman (9), who had first suffered from ulceration 17 years before. Loss of tactile sensation was confined to the anterior part of the feet, but loss of painful and thermal sensation extended up the lower part of the leg. Another woman (3) was examined in 1910, a year before her death and 24 years after the onset of the disease. Her notes record "loss of sensation to half-way up leg."

Ataxia was definitely absent in two cases (15 and 20); in one case (2) the notes state "gait is uncertain, but not typically ataxic." In the others there is no record. I found Rombergism in one case (9); it is noted as absent in three (3, 15, and 20); in another (2) the patient "is unable to stand with eyes shut and heels together." There was a slight deficiency of motor power in two cases (2 and 3), none in a third (15). The vesical and rectal control are normal. The Wassermann reaction of the blood has been taken in three cases. In two (3 and 24) it was negative, in one (15) it was first doubtful and later negative. In no case has the cerebro-spinal fluid been examined.

In the final stages ulceration and deformity of the foot gradually progress. The pain becomes very severe, deafness increases, and the patient is confined to bed. The death certificates of the four who have died are given below.

Prognosis.—The disease shortens life and curtails the activities of the sufferers during the last years of their life. Death took place at the ages of 51, 46, 46, and 49. There seems to be no special risk of septicæmia.

Treatment has been unsatisfactory. Symptomatic treatment may relieve some of the suffering; for the ulcers rest is essential, and can only be obtained by keeping the patient in bed. It is difficult to devise anything which can be expected materially to affect the course of the disease.

Diagnosis.—I have been unable to reconcile the symptoms with those of any recognised hereditary nervous disease, or of any disease known to cause perforating ulcers. They bear some resemblance to those of syringomyelia, but I have been able to find no description of syringomyelia which exactly corresponds with them. It appears to be an instance of the condition to which Sir William Gowers[1] gave the name "abiotrophy," and Raymond[2] referred to as "sénilité physiologique prématurée de certaines systèmes organiques." Its exact nature can only be settled by post-mortem examination.

Hereditary and familial perforating ulcers of the feet have been recorded by Schultze,[3] Goebell and Runge,[4] and Bruns.[5] Schultze described a family of three, a brother and two sisters, who suffered from perforating ulcers of the feet, with loss of knee- and ankle-jerks, and loss of sensation in the feet. There is no mention of deafness or shooting pains. He gave reasons for excluding tabes dorsalis, diabetes, polyneuritis, and leprosy. He discussed spina bifida occulta, and stated that he had observed it in several members of one family. Goebell and Runge described a family in which nine members in two generations suffered from perforating ulcers of the feet. They saw two of the sufferers, who had ulcers which discharged spicules of bone. Disturbances of sensation were doubtful; absence of glycosuria was noted in one case; neither patient suffered from shooting pains or deafness; and in neither were the knee-jerks lost. Bruns's cases were familial. In a family of four boys and a girl the eldest son escaped, but the other four children had perforating ulcers of the feet appearing first at the age of 17. Again there is no mention of deafness.

Conclusions.

1. The disease is hereditary. Its main symptoms are perforating ulcers of the feet, shooting pains in various parts of the body, and deafness.
2. It is progressive and shortens life.
3. It corresponds to no disease previously described, but bears some resemblance to syringomyelia.

Cases.

CASE 1.—Male, doll-maker; worked in white lead. His parents were free from ulcers, shooting pains, and deafness; he himself suffered from ulcers of the feet, "rheumatism" (apparently shooting pains), and was very deaf. For some years before his death his feet were shortened and his legs "mortified"; arms not affected. He died in 1874, aged 51. Death certificate: "Embolism and gangrene," according to his son's statement. This account is based on the statements of his descendants, as no hospital records are available.

CASE 2.—Male, brass-finisher. Symptoms began in 1885 at the age of 31. He had ulcers in both feet, which repeatedly healed and broke down again; at the age of 35 the second toe of right foot was amputated. At the age of 44 part of the ungual phalanx of the left great toe was removed, owing to persistent ulceration. At this time he suffered from shooting pains in limbs; tactile sensation in limbs was fair, with a few patches of anæsthesia; thermal anæsthesia noted in the legs. Tendon reflexes absent, eyes reacted to light and accommodation. Gait uncertain but not typically ataxic. He could not stand with eyes shut and heels together. Quite deaf in both ears for 10 years and unable to hear watch placed close to ear or on mastoid process. He died in 1900, aged 46. Death certificate: "Tabes mesenterica."

CASE 3.—Female. In 1897, aged 33, began to suffer from shooting pains in the legs. Aged 39, began to get deaf. Aged 41, perforating ulcers under each great toe noted. Pupils reacted to light and accommodation; loss of knee-jerks; anæsthesia in lower part of legs. Gait unsteady; no Rombergism; Wassermann reaction negative. Died at the age of 46. Death certificate: "Perforating ulcer of foot; syncope."

CASE 4.—Female. The disease began at age of 30; she suffered from ulcers of the feet, pain in the feet and head, and deafness. She died in 1905, aged 49. Death certificate: "Perforating ulcers of both feet, 15 years progressive necrosis of bones of both feet, softening of brain, and exhaustion." This account is based on the statements of her husband and children, as no hospital records are available.

CASE 8.—Female. From about the age of 15 had ulcers on the soles of the feet, which repeatedly healed and broke down again. In 1919, aged 32, she was admitted to hospital with ulceration of both big toes. Knee-jerks normal, pupils reacted normally, no glycosuria, Wassermann reaction negative, no spina bifida, no tabes. August, 1921, she wrote saying she still had ulcers of the feet, and now has also shooting pains and deafness.

CASE 9.—Female. In 1904, aged 22, first noticed ulceration of the feet. August, 1921, right big toe showed evidence of old healed ulceration on the plantar surface; it was shorter than the left big toe. Knee- and ankle-jerks absent, supinator jerks natural, pupils reacted to light and accommodation, no nystagmus, slight Rombergism present. Sensation: tactile anæsthesia over first interdigital cleft in both feet; painful and thermal anæsthesia over lower parts of both legs. Ears: slightly deaf for two years; both ears found to be plugged with cerumen. She heard much better after this was removed. Auditory nerve not tested on account of recent removal of cerumen.

CASE 13.—Male, October 1921, aged 32, slightly deaf for some months. For two months has had black callosity below left big toe. No signs of inflammation; small patches of anæsthesia round both big toes, knee-jerks equal and normal, ankle-jerks absent.

CASE 15.—Female. In 1915, at the age of 24, symptoms first appeared. She had ulcers in both feet, with discharge of a small piece of bone on one occasion. Admitted to hospital November, 1920. Nothing abnormal found in mouth, fauces, chest, and abdomen. In left foot, over heads of two inner metatarsal bones, were two ulcers; below the big toe the base of the second phalanx protruded and the bone was bare. There was swelling and œdema round the ulcers. Little

pain. Urine, no sugar. Nervous system: nothing abnormal found in cranial nerves, pupil reactions, and reflexes of arm. Epigastric reflexes equal, hypogastric obtained on left only. Knee-jerks brisk and equal. Ankle-jerks and plantar responses not obtained. Tactile sensation normal; slight analgesia and confusion between heat and cold in feet only. No ataxia, no Rombergism. Wassermann reaction Dec. 7th, 1920, doubtful; Jan. 4th, 1921, negative. Discharged March 5th, 1921, with ulcers healed. Six weeks later recurrence of ulcer in left foot. Two pieces of bone discharged from the big toe. No pain except "soreness" relieved after discharge of bone. She could walk well. Occasional shooting pains on outer side of right thigh and in left leg. August 18th, 1921, ulcer on outer side of fourth toe of right foot. Left foot healed. No change perceived in nervous system.

CASE 20.—Female. In 1920, aged 35, first had a corn below left great toe. No pain, no ulcer. In January, 1921, sharp intermittent pains in thighs, arms, and head; slight deafness began. August, 1921, thick black callosity on inner side of left big toe. No signs of inflammation. Tactile and painful sensation normal, definite slight loss of thermal sensation in both feet. Pupils reacted to light and accommodation. No nystagmus. Supinator jerks normal; knee-jerks equal and sluggish, ankle-jerks absent, plantar responses not obtained. No ataxia, no Rombergism. Aural condition investigated by Mr. C. E. West: deafness bilateral and constant, no tinnitus, both membranes lustrous and retracted, no opacities; right inferior turbinate large, otherwise nothing abnormal in nose. Tonsils normal, posterior nares could not be seen. Weber, not heard. Rinné, right, −35 secs.; left, −30 secs. Findings analogous to those of primary cochlear degeneration.

CASE 22.—Male. In Canada. Letter received October, 1921. Then aged 38. For two years has had ulcers on both feet, healing and breaking down again, which incapacitate him from work but not from walking. No shooting pains. Gradually becoming deaf. Suffers from nasal catarrh and head noises.

I am indebted to Dr. J. H. Drysdale for permission to describe Case 15, and to Mr. West for permission to quote his findings in Case 20.

References.—1. Gowers: Lectures on Diseases of the Nervous System, second series, No. 3. 2. Massalongo: Les Maladies Nerveuses Familiales, Arch. Gén. de Med., 1909, p. 129. 3. Schultze: Familiär auftretendes Malum Perforans der Füsse, Deutsche Medizinische Wochenschrift, 1917, vol. xliii., p. 545. 4. Goebell and Runge: Familiärer Trophoneurose der Unteren Extremitäten, Munch. med. Wochenschrift, 1914, p. 102. 5. Bruns: Familialer Symmetrischer Gangrän und Arthropathie an den Füssen, &c., Neurol. Centralblatt, 1903, vol xxii., p. 599.

EPIDIDYMITIS AND SUPRAPUBIC PROSTATECTOMY.

A STUDY OF 50 CASES.

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THE 50 cases are from a series of 55 consecutive cases operated upon at St. Peter's Hospital between April and October, 1921. On 5 of these cases, which died, the observations were incomplete, and therefore are not included. In order to determine accurately whether or not changes did occur in the epididymis as a result of prostatectomy, a careful note was made in each case of the existing condition of the scrotal contents before operation, and with a view to determining the significance of pre-existing venereal disease, and of previous catheterisations, facts relating to these points were also noted. These investigations show that inflammatory changes in the epididymis as a result of prostatectomy are the rule. Of the cases forming the subject of this paper 82 per cent. gave evidence of it. The degree of inflammatory process varied from the mildest form which could be detected by palpation, and caused no symptoms, to the purulent variety of epididymo-orchitis accompanied by local and constitutional disturbance.

Five degrees of inflammation were recognised and may be tabulated as follows from the mildest to the most severe form.

1. Thickening of the epididymis.

2. This change is more marked, the epididymis becomes adherent to the testis, and its coils adherent to one another.

3. The epididymis becomes large, hard, and firmly fixed to the testis, the change as a rule is more marked in the globus minor. There may be some tenderness.

4. The tunica vaginalis is distended with fluid. The epididymis is large, fixed, and tender; pain is marked, tenderness is acute, the scrotum becomes red and sometimes œdematous.

5. The previous condition goes on to pus formation in the epididymis. It involves the testicle which sloughs.

The inflammation may be unilateral or bilateral, if the latter, it is generally more advanced on one side than on the other. In 58 per cent. the infection could be made out on one side only. The greater number of cases, 67 per cent., fell into one of the first three stages into which the epididymitis has been classified. The incidence of the acute cases is shown in the table for convenience in percentage form, although the number of cases is small.

Percentage of Cases of Different Degrees of Epididymitis following Prostatectomy.

Group.	No. of cases.	No change in epididymes.	Inflammatory change in epididymes.	Bilateral epididymitis.	Acute epididymitis.	Suppurative epididymitis.
1. Epididymes apparently normal before operation, previous V.D. denied ..	19	26	74	37	26	5
2. Signs of previous infection of epididymes, previous V.D. denied ..	18	11	89	44	28	6
3. History of V.D., all admitting gonorrhœa, and one case syphilis also; all showing some sign of previous epididymitis	13	15	85	46	46	0
4. Total of three foregoing groups ..	50	18	82	42	33	4
5. Patients whose prostates were removed in two stages ..	9	44	56	22	—	—

In all cases other than acute forms the patient complains of nothing in relation to the scrotal contents, and unless these are palpated from time to time during the convalescence, and the findings compared with those existing before operation, these changes may pass unnoticed; not until the tunica vaginalis is distended with fluid does the patient complain of testicular pain, so that quite marked changes may pass unrecognised. These milder forms generally reach their maximum about the end of the second week after operation, when subsidence begins. On the other hand, such a case may slowly progress to the acute stage, and even go on to pus formation in the third week or later; or later still, there may be recurring attacks of more or less acute epididymitis. But the condition may, and generally does, remain throughout in one of the earlier stages. The majority fall under one of the headings marked 2 and 3 of the classification of epididymitis.

Less Acute Variety.—The less acute forms of epididymitis are of interest because: (*a*) They may progress slowly to the acute stage; (*b*) they may be the cause of recurrent attacks of epididymitis months later; (*c*) they show the comparative frequence of infection of the epididymitis as a sequence of prostatectomy.

Acute Variety.—This is of more serious import because: (*a*) It is likely to prolong the convalescence of the patient; (*b*) it is very likely to give rise to recurrent attacks of epididymitis later on; (*c*) it may progress to suppuration. When suppuration supervenes: (1) There is toxæmia; (2) the testicle is destroyed; (3) pyæmia and death have been recorded.

With regard to the mode of onset, two types have been observed—one developing rapidly and well-established by the end of the first week; the other

as a further stage of the more chronic variety, not coming on till the third week or later. Of the acute cases 64 per cent. followed the first type.

All the acute cases were associated with at least one of the following conditions: (*a*) Difficulty in irrigating the prostatic cavity; (*b*) unusual amount of infection of wound surfaces, sometimes associated with phosphatic deposit; (*c*) marked changes in epididymis before operation, resulting from previous inflammation.

Predisposing Causes.

In an endeavour to come to some conclusion with regard to predisposing causes of epididymitis it has been studied in its relationship to the following:—

1. Previous infection of the epididymis associated with (*a*) catheterisation, and (*b*) venereal disease.
2. Sepsis in the prostatic cavity.
3. Urethral instrumentation during the after-treatment.
4. Two-stage prostatectomy.

Relationship of Previous Epididymitis to Post-operative Epididymitis.

In 38 per cent. of cases only, previous to operation could the epididymes be passed as normal. This left 62 per cent. showing some evidence of pre-existing epididymitis. In the table these have been divided into two groups—Group 2, where the history of venereal disease was not forthcoming, and Group 3, giving a history of venereal disease. In the latter it was gonorrhœa in every instance, with syphilis in addition in one case. The most striking feature of the venereal group was the high percentage—viz., 46—which developed acute epididymitis following prostatectomy. In one of these, gonorrhœa had been contracted as long ago as 60 years. With regard to Group 2, it was interesting to observe that the bulk of the cases gave a history of frequent catheterisation previous to operation.

A comparison of the percentages of the post-operative infection in the apparently normal epididymes, with those of the previously infected, does not rest so much in the favour of the former as might be expected; this indicates that pre-existing infection is by no means the only factor of importance in determining a post-operative epididymitis.

By determining the incidence under the following headings the significance of previous infection in the post-operative epididymitis can be studied.

1. Cases with apparently normal epididymes before operation, denying previous venereal disease.
2. Cases with physical signs of previous epididymitis, and denying venereal disease.
3. Cases giving a history of venereal disease.
4. The total number of prostatectomy cases comprising the three foregoing groups.

Relationship of Sepsis in the Prostatic Cavity to Post-operative Epididymitis.

There is no doubt that the amount of sepsis existing in the prostatic cavity is a very important point in determining the degree of epididymitis. The prostatic cavity forms a cup-shaped receptacle with imperfect drainage; the torn ends of the ejaculatory ducts in the posterior wall of the cavity are continuously in contact with infected material for a certain length of time, and it is shown that in those cases in which it was impossible to carry out the daily irrigation of the prostatic cavity by Janet's method, the degree of epididymitis was severe. These cases were 10 in number, 4 of them developed acute epididymitis, one of them went on to pus formation, while the other 6 all showed marked inflammatory changes. Any case which shows signs of more infection than usual in the prostatic cavity and parietal wound is, in addition, generally a strong candidate for acute epididymitis, and in this connexion reference is again made to the case which develops the curious phosphatic deposit on its wound surfaces. The deposit appears during the first week, and persists till the third week or later, when it is all cast off on a fine superficial slough, exposing healthy granulations beneath. The deposit successfully resists all efforts to dislodge it until such time as the slough is ready to separate.

Relationship between Post-operative Instrumentation of the Urethra and Post-operative Epididymitis.

The rule followed in the treatment of these cases was not to pass an instrument of any kind until the tenth day, when a large metal sound was passed once into the bladder. In the majority there was no further passage of instruments, but in a certain number of cases, an in-dwelling catheter was left in the urethra for three days, during the fourth week or later, to hasten the closure of the suprapubic fistula. The epididymes, in many of these cases with well-marked changes already present, showed little or no alteration as a result of this form of treatment; on the other hand, those cases which had developed acute epididymitis were given every chance to heal without resorting to an in-dwelling catheter, which, in any that did not finally close after a prolonged opportunity, was only used after the acute symptoms had completely subsided.

The secret of successful use of the in-dwelling catheter is to avoid resorting to it too soon, and to leave it in the urethra for as short a time as possible. Acute epididymitis is easily produced by neglect of either of these rules. Whereas changes in the epididymes were, as a rule, to be noted before the tenth day, and whereas 64 per cent. of the acute cases were established by the seventh day, it is doubtful whether the passage of a sound on the tenth day has played anything but an insignificant part in determining either the degree or incidence of epididymitis in this series of cases. Five out of 14 of the acute cases occurred after the tenth day, one on the fifteenth, one on the seventeenth, one on the eighteenth, and two on the twenty-first day. Each one of these cases was associated with one of the conditions previously mentioned as predisposing to acute epididymitis, and it seems unnecessary to search for any additional cause.

Post-operative Epididymitis in Two-Stage Prostatectomy.

The value of two-stage prostatectomy as a possible precaution against post-operative epididymitis should be realised when it is recalled that acute epididymitis may result from an infected bladder arising as a complication of enlarged prostate previous to prostatectomy. Thus, by draining the bladder the degree of infection is reduced, and the danger of other infective processes supervening later is diminished, although this procedure does not eliminate the possibility of acute epididymitis occurring, as sometimes happens, soon after cystotomy is performed.

Nine of the 50 cases dealt with were done in two stages. The time which expired between the preliminary cystotomy and the prostatectomy in the various cases ranged from one week to eight months. It would have been of more value had there been a greater number of cases to show the relationship between the two-stage operation and epididymitis. Yet it is worthy of careful consideration that a reference to the table, where these cases are dealt with in Group 5, shows that under each heading the incidence of infection was consistently lower than in any other group, and also that no acute case occurred. By reference to the table it is also seen that the number of cases with some degree of infection of the epididymes resulting from prostatectomy is extremely high, representing 82 per cent. of the total operated upon, and that even those free from evidence of previous infection, and denying all knowledge of it, revealed a percentage of infection as high as 74. Undoubtedly previous epididymitis adds to the risk, but from the figures just quoted it is clear that some degree may be expected in most cases. In many, fortunately, it is only of minor significance.

The acute cases alone cause anxiety, and an incidence of 33 is a high percentage for a complication which may have a more serious issue. The entire absence of this complication in the cases done in two stages commends the procedure, in addition to its other advantages, as a possible safeguard against acute epididymitis.

I wish to express thanks to the staff of St. Peter's Hospital for permission to publish these notes.

THE EFFECT OF EDESTIN ON MAMMARY SECRETION.

BY GLADYS ANNIE HARTWELL, M.Sc.

(From the Physiological Laboratory, Household and Social Science Department, King's College for Women, Kensington, London.)

Is mammary secretion merely dependent on the quality and quantity of the food taken, or are there such things as specific galactagogues? The evidence from the physiological side is somewhat vague and indefinite, yet to certain substances is attributed the property of galactagogues. Milk, for instance, is thought to stimulate the production of milk; yet most animals produce large supplies of milk, although they never take any in their food. With regard to human beings, it is very difficult, in fact practically impossible, to eliminate the psychological factor; hence, in this respect, animal experiments may be of use.

Experimental Methods.

Rats were used in these experiments; they readily eat any foods given to them, and are normally omnivorous. The males and females were kept together and fed on a diet of kitchen scraps, supplemented occasionally by small amounts of bread and whole milk. The females were removed to separate cages a few days before the birth of the young. After lactation (which lasts three weeks) the females were kept separate from the males for two to three weeks and again fed on a similar mixed diet, after which they were returned to the males and more litters obtained. Throughout these experiments the females used were normal, healthy animals and they remained so during lactation.

The special diets were started as soon as possible after the birth of the young, in no case later than 24 hours. Frequently the babies were born in the night and the diet started next morning. The mother rat rarely ate much the day before or the day after the birth of the litter. The animals were given as much food as they liked to eat, the proportions of the constituents being kept constant and the amount taken noted. The various substances fed were mixed together in a moist paste to prevent the animals from picking out any one constituent. Water was given ad lib. The mother and litters (as a whole) were weighed every day. The number in the litters was reduced to six to avoid any overstrain on the mother, and to make different experiments strictly comparable.

Actual Experiments.

The results given were obtained from 25 separate experiments, but to save space one typical curve only is shown.

1. *Effect of Adding Commercial Edestin to a Good and Physiologically Complete Diet* (Fig. 1).—White bread soaked in whole milk is regarded as a suitable and adequate diet for a lactating rat and it has previously been shown that among the ordinary foodstuffs this gives the best growth curves for suckling rats.[1]

Expressed numerically the results obtained are as shown in the following table:—

Expt.	Diet.	Average weight.		
		At birth.	16th day.*	At weaning.
D.	Bread and milk.	5·50 g.	29·50 g.	39·18 g.
154	Bread and milk + comml. edestin from ninth day onwards.	5·66 g.	28·50 g.	39·50 g.
155	Bread and milk + comml. edestin every day.	4·50 g.	26·60 g.	36·20 g.

* When beginning to eat.

[1] Hartwell, G. A.: Biochemical Journal, xv., 140, 1921.

From the curves in Fig. 1 it is obvious that the addition of commercial edestin to such a diet as bread and milk is practically without effect, since curves D and 154 almost coincide and that of 155 runs parallel with them. All the litters were normal and healthy and were successfully weaned at the usual time—i.e., 21 days.

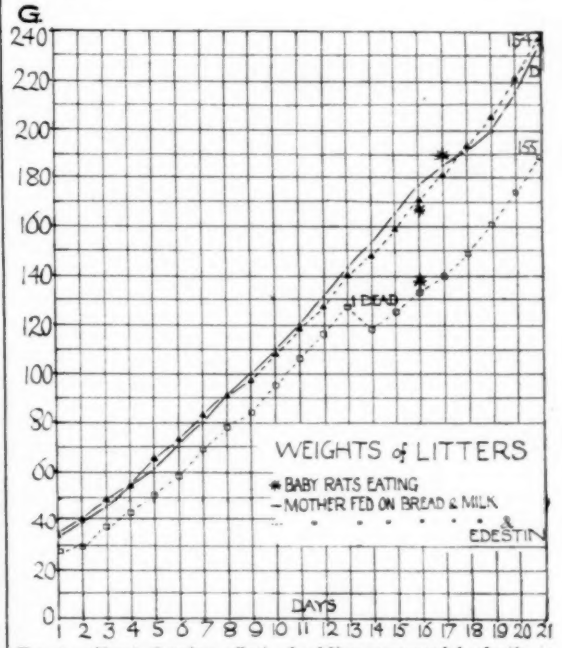

FIG. 1.—Chart showing effect of adding commercial edestin to a good and physiologically complete diet.

Expt. D. .. Mother rat fed on white bread and whole milk.
„ 154.. Mother rat fed on white bread and whole milk to which 1 g. commercial edestin was added from ninth day onwards.
„ 155.. Mother rat fed on white bread and whole milk with 1 g. commercial edestin per day throughout lactation.

2. *Effect of Adding Commercial Edestin to a Diet that Produces Submaximal and Defective Growth in the Young.*—The basal diet consisted of white bread soaked with water in which a little marmite was dissolved. Such a diet contains 14 per cent. of its dried substance as protein, which is comparable with the protein in a human dietary. But the protein is poor in quality and it has been shown[1] that the growth of the young when the mother is receiving this diet is poor compared with that on bread and milk.

Two series of experiments were made: in one commercial edestin was added to the basal dietary, and in the other commercial caseinogen. Different proportions of protein were tried, e.g.:—

1 g. edestin and 1 g. caseinogen to 15 g. bread.
2 „ 2 „ „ „
5 „ 5 „ „ „

The curves obtained are practically identical (Fig. 2); there is little advantage in edestin over caseinogen. Since edestin and caseinogen give similar curves, it is suggested that the former is a most efficient protein, but not a specific galactagogue. This suggestion is further supported by the fact that large quantities of edestin fed to the mother result in harmful effects to the young, such as previously described[2] when the mother's diet contained too much protein. This is illustrated in Fig. 3.

Again, the edestin and caseinogen curves are very similar and the growth at first obtained is decidedly better than that of litter 16, whose mother was fed on

[2] Hartwell, G. A.: THE LANCET, 1921, i., 1240.

a diet in which egg-albumin was given instead of edestin or caseinogen. This is in agreement with the fact that edestin and caseinogen are much alike in composition, while egg-albumin is a less good protein, containing less of the essential amino-acids. It should be pointed out that the quantity of edestin given to the rats in this last experiment is much greater in proportion to the size of the animal than would be given

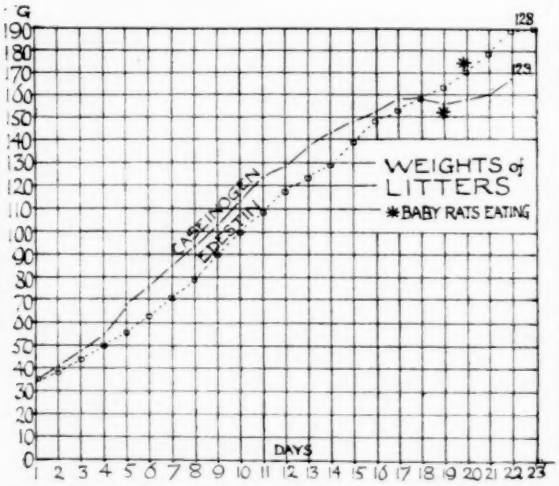

FIG. 2.—Chart showing effect of adding commercial edestin to a diet that produces submaximal and defective growth in the young.

to a human mother, therefore there is no possibility of such drastic effects. However, experiments now in progress, and to be published at a later date, show that large quantities of protein may depress the growth curve even when the litter exhibit no abnormal symptoms.

From these experiments it is suggested that edestin is a very good protein, and that it improves the growth

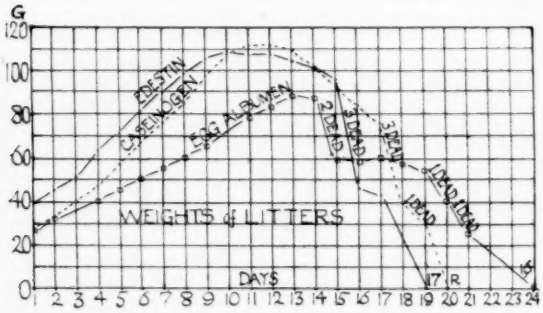

FIG. 3.—Chart showing harmful effect on the young of large quantities of edestin fed to the mother.

curve of suckling rats when the mother's diet is deficient in protein. When added to a diet containing an adequate amount of protein it has no effect, and when present in large amounts in the mother's diet (46 per cent. of the dry weight of food) the young die.

My thanks are due to the Medical Research Council for a grant which defrayed the cost of this work.

PHARMACEUTICAL SOCIETY OF GREAT BRITAIN.—A meeting will be held in the Society's lecture theatre at 17, Bloomsbury-square, London, W.C., on Feb. 23rd, at 8 P.M., when Mr. F. W. Gamble, Ph.C., and Mr. Norman Evers will communicate a paper on Modern Ideas Respecting Acidity and Alkalinity. Medical friends of members and student-associates will be welcomed.

Medical Societies.

ROYAL SOCIETY OF MEDICINE.

SECTION OF TROPICAL DISEASES AND PARASITOLOGY.

A MEETING of this section of the Royal Society of Medicine was held at 1, Wimpole-street, on Feb. 6th, with Sir LEONARD ROGERS, the President, in the chair. The following communications were made:—

Certain Blue Bodies Seen in Leishmaniasis.

Dr. J. B. CHRISTOPHERSON stated that the so-called "blue bodies" were constantly found in all the forms of leishmaniasis met with in the Soudan, oriental sore, espundia, and kala-azar, and could be recognised in the tissue fluids of oriental sore and in the blood from splenic puncture in kala-azar. In smears treated with Leishman's stain and examined under the oil-immersion, the "bodies" appeared round or oval in shape and varied in size from one-third to two-thirds the diameter of a red-blood corpuscle of a uniform or slightly stippled blue colour and showing one or two pink specks at the periphery. It was suggested that some of these "blue bodies" represented the degenerate cystic remnants of the Leishman-Donovan bodies, although it was probable that the majority of them resulted from fragmentation of the cytoplasm of the tissue cells due to the destructive action of the parasites. Support was lent to the possible parasitic origin of the "blue bodies" by changes which had been observed to take place in living preparations of the Leishman-Donovan body, grown on N.N.N. medium and examined in tap-water under a cover-glass. The flagellates previously actively motile became rounded, lost their tails, and apparently died. When such a specimen was stained, the nuclei were found to be shrunken and indistinct and the cytoplasm vacuolated, showing that the cultivated parasite was very sensitive to chemio-physical conditions around it. Moreover, stained films of the Leishman-Donovan bodies from oriental sores and splenic punctures in kala-azar showed evidence suggesting that the organism when once outside the tissue cells and free in hostile surroundings, such as the tissue fluid and blood, became rounded, vacuolated, and degenerated as the result possibly of osmotic influences. It was thought that such changes might afford explanation of the difficulty experienced in finding the parasite in the peripheral blood and that sensibility to chemio-physical conditions would also account for the rapid disappearance of the Leishman-Donovan body after death of a kala-azar patient. Stained smears from splenic puncture in kala-azar and of material from the base of oriental sore, which were demonstrated at the meeting, appeared to show a gradation from the Leishman-Donovan body to the "blue body" in question. Comment was invited on the suggested origin of the bodies and as to their possible diagnostic value, when search for the typical Leishman-Donovan body proved a failure.

Sir LEONARD ROGERS, Dr. ALDO CASTELLANI, Sir PERCY BASSETT-SMITH, and Colonel J. C. KENNEDY, R.A.M.C., took part in the discussion which followed.

Amœbic Abscess of the Liver.

Dr. J. FOREST SMITH gave an analysis of cases of amœbic abscess of the liver treated in St. Thomas's Hospital during the last 25 years. He referred to the rarity of acute amœbic dysentery in people who had never visited countries where dysentery was endemic. He quoted 6 cases and described 1 case of amœbic dysentery in a child admitted to hospital in 1920. The cases of amœbic abscess were divided into two groups. In the first a history of service abroad was obtained; the second and smaller group included three patients, resident in England. The details of group 1 of 29 cases were shown on tables by means of the epidiascope. The majority of these

patients gave a history of dysentery and three had had previous treatment for liver abscess. The age-incidence varied from 21 to 71 years, and the interval between the original infection and admission to hospital with abscess ranged from 25 years to 5 weeks. The countries of infection were given and it was stated that the Boer War was accountable for 5 cases. The value of emetine was shown in the treatment of liver abscess. In the first 15 cases there were 10 deaths, where surgical measures only were used. In the next 14 cases only one fatal result was recorded in a case admitted to hospital in extremis. The surgical treatment of amœbic abscess was described. The abscess was situated in the right lobe of the liver in 26 cases and in the left lobe in 3 only. An account was given of 3 cases in which the contents of the abscess had been expectorated. The possible difficulties in diagnosis were described in detail in one case, and reference was made to cases sent to hospital diagnosed as some form of respiratory disease. Results of post-mortem examinations on 10 fatal cases were given, in 9 of which ulceration of the colon was found. In 3 cases the abscess had perforated into the pleura, in 1 case into the right bronchus, and in a further case into the ascending colon and duodenum. In the second group of cases representing patients who had not been abroad, Dr. Forest Smith described one case of amœbic abscess in a woman, in whom the probable source of infection was the husband, an ex-soldier who had had dysentery. Two cases of solitary abscess of the liver were submitted for consideration as to ætiology.

Sir LEONARD ROGERS, Sir PERCY BASSETT-SMITH, and Dr. ARTHUR POWELL took part in the discussion.

The Morphology of the Cercaria of Schistosoma Mansoni from Planorbis Boissyi of Egypt.

Dr. M. KHALIL said that the cercaria was provided with two sets of glands—oval and periacetabular. There were five pairs of periacetabular glands. Each was provided with a long duct, opening at the cephalic end of the body at the base of a minute sharp spine. The cytolytic secretion of these glands probably aided the process of penetration of the skin of the final host. The author differed from previous observers in his account of the excretory system which consisted of four pairs of flame cells, three pairs in the body and one in the tail. The larger number previously recorded was believed to be due to the presence of active cilia visible in the excretory ducts. The number of flame cells in *S. mansoni* was the same as that reported in *S. japonicum* by Cort and might prove to be the same for all *Schistosoma cercariæ*. The characteristics upon which Faust based his classification of *S. cercariæ* would appear, Dr. Khalil said, to be fallacious. Until more accurate knowledge of the anatomy of the other *Schistosoma cercariæ* was recorded, the only means of diagnosis now available was that advised by Prof. Leiper—viz., the recovery of the adults after experimental infections.

Bilharziasis and Canal Infection in Egypt.

Dr. CHRISTOPHERSON read a letter from Dr. F. J. Harpur, of the C.M.S. Hospital, Old Cairo, who drew attention to the way in which natives were exposed to bilharzial infection in the process of cleaning out the canals in the Nile delta. Thousands of fellaheen were employed working bare-armed and bare-legged and shovelling out with their hands mud from the canals, which was almost certainly heavily infected. Included among the workers were many actually suffering from bilharziasis and ankylostomiasis, who, by defæcation on the canal banks thus provided additional sources of infection. Dr. Harpur strongly advocated strict regulations to prevent infection of the canals and urged the adoption of mechanical means for removal of mud from the canals, if such could be devised by the irrigation engineers, to obviate natives handling the mud and so infecting themselves. A lantern slide, made from a photograph sent by Dr. Harpur, was also shown of a native at work in the canal handling the mud.

Prof. R. T. LEIPER, who also spoke on Dr. Khalil's paper, said that the canals presented important problems for the sanitary authorities in connexion with the prophylaxis of ankylostomiasis and bilharziasis in Egypt. He had found *Planorbis boissyi*, the mollusc intermediary host of cercariæ of *S. mansoni*, in abundance in the canals.

SECTION OF NEUROLOGY.

SOME VARIETIES OF TRAUMATIC AND TOXIC ULNAR NEURITIS.

A MEETING of this section of the Royal Society of Medicine was held on Feb. 9th, Mr. PERCY SARGENT, the President, being in the chair.

Dr. E. FARQUHAR BUZZARD read a paper with the above title, which is printed in full in the present issue of THE LANCET.

Discussion.

Dr. WILFRED HARRIS said he also had a peculiar interest in the ulnar nerve since the time when as a schoolboy of 13 years his left ulnar nerve was struck at the elbow by a stone thrown by another boy. He had great pain at the time and had constantly received minor injuries to his ulnar nerves ever since. He thought that this was one of the disadvantages of the erect position of man, since the ulnar nerve was unprotected in this position. He believed that in carnivora the nerve passed through a foramen in the humerus and was thereby better protected from injury. There was one point in the distribution of the ulnar nerve which he wished to emphasise. In some cases the ulnar nerve did not supply the first and second dorsal interossei, and in such cases, unless this possibility were realised, a peripheral ulnar lesion might easily be mistaken for a central one.

Dr. STANLEY BARNES emphasised the nervous origin of the various occupational muscular atrophies. He saw many such cases in his practice in a large industrial centre; some of them exhibited swellings on the nerve trunks. He instanced one case where a lad, now 17 years old, suffered from a severe ulnar neuritis due to a fracture of the internal condyle of the humerus when he was 7 years old. The nerve could be felt running over a promontory, instead of being in a groove. It was difficult to know what to do for this case; every possible measure had been tried except operation, and Dr. Barnes's war experience of resection and suture was not sufficiently encouraging to justify such treatment so long as any muscular power or sensation remained. Occupational neuritis of the ulnar nerve was due in many cases to friction between the nerve and the humerus due to prolonged use of the arm with the forearm flexed. In a few cases he believed that friction occurred higher up between the clavicle and the first rib.

Dr. HENRY HEAD quoted a number of Mr. Sherren's early cases of ulnar neuritis following bone injury treated surgically. In those days it was not customary to displace the nerve to the front of the internal condyle, but the operation consisted merely in linear division of the sheath of the nerve in the region of the neuroma. Had the nerve been displaced the results would have been better. Dr. Head also commented on the protopathic overflow of sensibility into the radial or median parts of the hand with strong painful stimuli of the ulnar nerve; unless this were realised errors might occur in diagnosis. Defective sensibility was limited to ulnar nerve distribution.

Dr. G. RIDDOCH said that the pain resulting from ulnar neuritis due to bone injury could hardly be connected with the involvement of nerve in callus, since it appeared so very late. He instanced a case where the pain came on 15 months after the injury. This case had proved very difficult to treat. Alcohol injection of the nerve had given relief for one month, and a recent surgical operation had resulted in complete relief for three weeks, but the symptoms were now beginning to reappear. Dr. Riddoch also commented on the fact that some patients exhibited motor and others sensory symptoms following the same sort of injury.

The PRESIDENT referred to the delay in the appearance of symptoms after fracture of the lower end of the humerus. He had seen a clerk, aged 30 years, whose recent ulnar neuritis could only be attributed to a fracture at the age of 4 years. A variety of pathological conditions might be found in these cases. Adhesions were often a cloak for ignorance, but he had in one instance seen a case where the nerve had been compressed under the fibrous arch between the two heads of the flexor carpi ulnaris; complete relief had followed the division of this arch. In another extraordinary case, that of a carpenter who could not flex the elbow beyond a right angle without pain, the nerve was found to be normal at operation, but a loose cartilage was found in a synovial pouch lying between the nerve and olecranon process. The removal of this cartilage cured the patient. For the ordinary type of neuritis associated with a fusiform neuroma, the President said it was his practice to make longitudinal incisions in the sheath and to transplant the nerve to the front of the arm. He agreed that resection of the neuroma with suture of the nerve was quite uncalled for in these cases.

Reply to the Discussion.

Dr. BUZZARD said he had noticed the occasional abnormal distribution of the ulnar nerve first described by Dr. Harris. The post-traumatic cases could not be due to callus formation, but were due to the more exposed situation of the nerve which resulted from the obliteration of the groove in which it normally was protected and to the increased amount of movement which resulted from this.

MEDICAL SOCIETY OF LONDON.

INFLAMMATORY STRICTURES OF THE RECTUM.

A MEETING of this Society was held on Feb. 13th, Mr. JAMES BERRY, the President, being in the chair.

Prof. H. HARTMANN read a paper with the above title, which we publish in full in the present issue of THE LANCET.

Discussion.

Mr. J. P. LOCKHART-MUMMERY said that 15 years ago internal proctotomy had been almost completely abandoned on account of the danger of sepsis—a severe pelvic cellulitis having been frequently caused as a result of the operation. About this time, however, the practice of antiseptic irrigation of the rectum before operations was instituted at St. Mark's Hospital, and he thought it might be safe to give internal proctotomy a further trial under these conditions. He found the operation very satisfactory, and had since practised it in 40 or 50 cases without any serious sepsis arising in any of them. Division of the stricture, followed by gradual dilatation, gave three or four years relief in all cases, and permanent relief to those patients who presented themselves for intermittent dilatation at regular intervals. He inquired whether Prof. Hartmann had not found a number of these cases following a difficult instrumental labour, during which damage was inflicted on the rectum either by the fœtal head or by forceps. A number of Mr. Lockhart-Mummery's cases had been due to this cause. At St. Mark's Hospital very few cases of syphilitic stricture were seen.

Dr. HERBERT SPENCER thought that very few cases could be due to difficult labour. He could not remember a single case during his 25 years' practice as a gynæcologist, and he thought that these cases did not occur as frequently as formerly.

Mr. ERNEST MILES inquired whether Prof. Hartmann could throw any light on the pathogenesis of the destructive ulceration of the rectum usually termed "chronic infective," although we had no real knowledge of its origin. He had brought with him two specimens of this form of ulceration in which the mucosa of the rectum was destroyed for some distance, and there was a stricture at the sharp upper margin of the ulceration. These cases used to be much more prevalent than they now are. Pathologists had done considerable work on this kind of ulceration, but had not found any specific organism; it had been suggested that the ulceration might have been caused by *B. coli communis* under altered conditions. He attributed the rarity of these cases at St. Mark's Hospital now to the use of antiseptics. Mr. Miles also inquired how often Prof. Hartmann found that his patients had proper control of the bowel after excision of the rectum (the Mikulicz operation). He had been disappointed with his own results after this operation. On account of this loss of control he had been obliged to perform colostomy later.

Sir CHARLES GORDON-WATSON said that there were many types of stricture of the rectum, each of which presented a different problem in treatment. In his experience the syphilitic stricture was rare. He had seen only two cases in which the W.R. was positive, and these were not cured by anti-syphilitic remedies alone. For the stricture following chronic proctitis, he practised gradual dilatation followed by intermittent dilatation, antiseptic wash-outs, and zinc ionisation. He thought it possible that the severe type of ano-rectal ulceration commenced as an abrasion of one of the valves of Morgagni. Many cases in women were gonorrhœal, the proximity to the vulva providing a ready explanation of this.

Mr. GORDON TAYLOR said that he had under his care at the Middlesex Hospital a girl aged 18 years who had a stricture 3½ inches from the anus, with numerous fistulæ connecting with the exterior. This case was of especial interest in that it had been proved by repeated examination of the discharges to be due to actinomycosis.

Mr. L. E. C. NORBURY had recently seen a case where two separate strictures existed within reach of the finger. He inquired whether such cases were common.

The PRESIDENT referred to the exhibition of specimens of stricture of the rectum in the Society's rooms. These came from all the hospital museums in London, and their great variety explained the differences in the practice of different surgeons. Some of the strictures were obviously unsuitable on account of their greath length for internal proctotomy. Several specimens showed perforation of the rectum, which in some cases had been caused by the introduction of a bougie.

Sir ARBUTHNOT LANE said that most of the cases he had seen had been the result of some surgical procedure. He had seen occurrence of ulceration and stricture of the rectum some three or four years after removal of the colon for ulcerative colitis.

Mr. A. J. WALTON also referred to the relation which occasionally existed between stricture of the rectum and ulcerative colitis, and quoted a case in which he had performed appendicostomy for ulcerative colitis accompanied by a recto-vaginal fistula. The same case had needed colostomy later for a long stricture of the rectum. As a rule the lesions of ulcerative colitis ceased abruptly above the rectum; their relation to stricture of the rectum was therefore difficult to explain.

Reply.

In reply Prof. HARTMANN, speaking in French, expressed his great pleasure in being privileged to address the Society. He agreed with Dr. Spencer in regarding the "obstetric stricture" as very rare. Only about half his cases had occurred in women, and of these all, or almost all, were sterile and nulliparous as the result of syphilis or gonorrhœa. Multiple strictures of the rectum were uncommon—amongst his 86 cases there was only one. He could not speak about the value of internal proctotomy from his own experience; having seen a series of accidents follow the operation in the hands of other surgeons, he had never practised it himself. He considered excision of the rectum the ideal operation for these cases, since it gave complete relief and abolished all need for prolonged after-treatment. In cases which were submitted to this operation he had found perfect control of the bowel followed the operation; but this could not be

promised to those who presented themselves at a later stage of the disease.

A vote of thanks to Prof. Hartmann, proposed by Sir ANTHONY BOWLBY, who referred to the medical entente between France and England, and seconded by Mr. ERNEST MILES, was carried with acclamation.

ABERDEEN MEDICO-CHIRURGICAL SOCIETY.

A MEETING of this Society was held on Jan. 19th, when a discussion was opened by Dr. GEORGE WILLIAMSON, Dr. J. F. CHRISTIE, Prof. J. MARNOCH, and Dr. GEORGE ROSE on that part of the Hippocratic Oath which reads "Whatever in connexion with my professional practice, or not in connexion with it, I see or hear, in the life of men, which ought not to be spoken of abroad, I will not divulge as reckoning that all such should be kept secret." There was a good discussion, in which some of the senior members of the Students' Medical Society, who had been invited to be present, joined.—On Feb. 2nd Dr. W. F. CROLL gave an address, with lantern illustrations, on "Graphic Methods as an Aid to the Diagnosis, Prognosis, and Treatment of Cardiac Affections." The subject was divided into three sections: (*a*) How the records are taken; (*b*) the normal records and their interpretation; (*c*) graphic records of abnormal conditions.

LEEDS AND WEST RIDING MEDICO-CHIRURGICAL SOCIETY.

AT a meeting of this Society held on Feb. 3rd Dr. W. MACADAM read a paper on

Acidosis and Its Types in Relation to Disease.

An account was given of the modern conception of the reaction of the blood and of the various factors entering into the mechanism of regulation. The eight variations in the acid-base ratio which are theoretically possible were discussed, and it was pointed out how all had been produced experimentally whilst several of the types had been observed clinically. Recent work on the acidosis associated with marked cardiac dyspnœa was touched upon, and the apparent identity of this variety of acidosis with the renal type discussed. A description was given of some interesting features occurring in the compensated acidosis of pulmonary emphysema. Emphasis was laid on the neglect of the study of variations in the acid-base balance of the blood towards the alkalotic side. The acetonuria observed by J. S. Haldane, in the conditions of alkalosis induced by voluntary hyperpnœa and by large doses of sodium bicarbonate, suggests that clinicians may have to regard the possibility of acetone bodies occurring in the diametrically opposite set of conditions from that with which they usually associate their presence in the urine. Dr. MacAdam gave a short account of some observations he had made on a case of cyclic vomiting in an adult which appeared to be associated with a condition of alkalosis, as shown by the urinary findings and the examination of the alkali reserve of the blood and the CO_2 tension of the alveolar air. Marked improvement had followed the administration of acids.

ROYAL SOCIETY OF MEDICINE: EPIDEMIOLOGICAL SECTION.—At the meeting of this section, held on Jan. 27th, certain remarks (see p. 228), which were attributed to Dr. F. N. K. Menzies, were made by Dr. E. P. Manby.

ST. MARK'S HOSPITAL FOR DISEASES OF THE RECTUM.—The annual general meeting of the governors was held on Feb. 9th at the Mansion House, the Lord Mayor presiding. It was stated that the purchase of the adjoining site had been completed, and that the sum of £10,000 was required for a much-needed extension of the premises so that more patients might be benefited. At present many patients had to wait as long as three months for admission, the accommodation being quite inadequate.

Reviews and Notices of Books.

DIET AND RACE: ANTHROPOLOGICAL ESSAYS.
By F. P. ARMITAGE, M.A., Director of Education for the City of Leicester. London: Longmans, Green and Co. 1922. Pp. 144. 7*s.* 6*d.*

THE thesis that racial characters are to some extent dependent on the diet consumed over many generations is no new one. We remember reading an article some years ago, in which it was claimed that the build and facies of the modern American citizen showed a tendency to assume certain of the characters of the Red Indian, and this was ascribed to similarity of diet. The book before us comprises three sections dealing respectively with physique, colour, and cranial form. Physique is determined by the individual diet, and is not a racial character; when the food-supply is more or less the same, the stature is more or less the same. Mr. Armitage had written the book before the discovery of vitamins, and he suggests that a further analysis of his data, having in view the part played by these substances, might prove interesting. No doubt such a study would further bear out his general conclusion. As regards colour, the amount of salt available is considered to play an important part; though the data given certainly lend some colour to the theory, the physiological explanation advanced—"that pigmentation may be due to a change of colouring matter of the blood into hæmatoidin . . . by the prolonged action of light and heat, and that the effect of an increased intake of salt on pigmentation" (which is diminished) "may be due to a lessened action of light, owing to an accelerated movement of the blood corpuscles"—will certainly not bear examination. The section discussing effect of diet on cranial form is an anatomical essay, in which a relation is claimed to exist between the diet and consequent strength of the various masticatory muscles and skull form.

The author has collected a large amount of material, evidently with great pains; it is impossible to form any opinion as to its accuracy, as original sources are so frequently omitted. The anecdotal details concerning salt hunger are particularly numerous, and the whole production is put together in a scholarly fashion. Nowadays, when investigations concerning diet are so much to the front, a more scientific treatment might have been acceptable, but the author has probably done the best he could with the scanty evidence obtainable.

PREVENTIVE MEDICINE AND HYGIENE.
Fourth edition. By MILTON J. ROSENAU, Professor of Preventive Medicine and Hygiene, Harvard University. London and New York: D. Appleton and Co. 1921. Pp. 1567. 45*s.*

A PERUSAL of the table of contents contained in this massive volume is eloquent of the progress of hygiene, especially when it is compared with the corresponding table in Edmund A. Parkes's pioneer work on Hygiene and Public Health. In Rosenau's work 33 pages are devoted to mental hygiene, while separate sections deal with drug addiction and alcohol, infant mortality, and public health nursing. An especially valuable article is that on the problems of immunity; and the principles of heredity and eugenics and the hereditary transmission of disease are subjects also discussed at some length; other sections deal with industrial hygiene and the diseases of occupation, school sanitation, and personal hygiene, while a final chapter gives a suggestive outline of a laboratory course in preventive medicine and hygiene. In addition to the items enumerated, the reader will find an adequate account of all the subjects ordinarily found in text-books of public health and hygiene.

Discussing venereal prophylaxis and the hygiene of sex, Prof. Rosenau concludes that although the use of calomel ointment and silver solution instillation is successful in army experience, it is impracticable in

civilian life, except in individual cases, since it requires time, intelligence, and sobriety. When dealing with tuberculosis Prof. Rosenau emphasises the delicacy of the balance between immunity and susceptibility in man; there is only a small factor of safety, and frequent reinfections at short intervals with small numbers of tubercle bacilli may break down the immunity, which, on the other hand, is increased by hygienic conditions.

As to diphtheria the drastic advice is given that every death from this disease should be investigated and the responsible party brought to task! Of the epidemiology of cerebro-spinal fever it is said, "We must frankly admit that when cerebro-spinal meningitis has once become epidemic it cannot be stamped out by any known means of practical application." If to this general statement exceptions be made, such as providing for smaller aggregations of soldiers and better spacing-out of sleeping accommodation, the above dictum probably represents our present administrative knowledge. Dr. Salmon's contribution on mental hygiene contains an incidental blessing of the 18th Amendment to the Constitution of the United States. This legislation constitutes an immense experiment in psychopathology; and its effects upon individual inebriates may furnish valuable material and render it possible to determine what some of the essential personal factors in alcoholism have been. The difference between Murchison's pythogenic theory and present views is summarised in the statement that typhoid fever is not now regarded as a filth disease; it is really a filthy disease, for in each case a short-circuit has been established between the discharges from one person and the mouth of another. On two pages and in the index Murchison's name is spelt *Murchinson*, but we have found few other clerical errors.

The book can be strongly recommended. It would be difficult to refer to it on any point in the wide range of preventive medicine and hygiene without obtaining accurate and generally complete information.

HOW TO BE USEFUL AND HAPPY FROM SIXTY TO NINETY.

By A. LAPTHORN SMITH, B.A., M.D., M.R.C.S. With a Foreword by Sir CHARTERS SYMONDS, K.B.E., C.B., M.D., M.S., F.R.C.S. London: John Lane, The Bodley Head, Ltd. 1922. Pp. 236. 5*s*.

Dr. Lapthorn Smith has addressed himself, upon information gained by a life spent in medical work both practical and administrative, to the proving of the contention that the best way to be useful and happy after 60 is to preserve mental and bodily activity. But need this be proved when the thesis has been so well supported by many writers through hundreds of years? But, anyhow, Dr. Lapthorn Smith approaches the subject from an original angle, as he is writing not on how to prolong a useful and happy life, but on how to employ that usefulness and happiness for the good of others, when an age has been reached at which not much more is expected from man or woman. In a chapter entitled Work for the Elderly he points out that there is not only much work which can be well done by men over 60, but that for their own sake men should continue to work as long as they can discharge their duties effectively, for, otherwise, "inside of a year they are generally dead, from no definite diseases in most cases, but simply because rust and dry-rot got into their machinery and the wheels would not go round." The book is made particularly interesting by the numerous references to octogenarians and nonogenarians whose output of work was not only large but quite valuable till the end of their careers.

The maxims for the conduct of life in the man or woman of over 60, which close the book, are sound if platitudinous, but, alas, the advice cannot always be followed. Who, for example, in this country can provide for a fixed income? Who can avoid financial worry? It is admirable counsel for all of us that the equal mind should be preserved in hard circumstances—so far we can endorse Dr. Lapthorn Smith's views: but we cannot obviate the circumstances by economy if we have to endure a necessary taxation that cannot be met, dispose of a house that is too large for us, or realise securities in a brief space of time. One piece of advice is a little puzzling in a list of recommendations for the information of persons over 60; it consists of the fifth commandment.

UROLOGY.

Kystoskopischer Atlas. Second edition. By Dr. ERICH WOSSIDLO, Urologist, Berlin. Leipzig: Wilhelm Engelmann. 1921. With 42 plates and 227 coloured illustrations. Pp. 98. M.195.

THE bladder pictures which constitute the main feature of this book are numerous, well chosen, and excellently reproduced. An earnest endeavour has obviously been made to portray the conditions as they were actually seen and to avoid diagrams. Most colour illustrations, especially of conditions observed by artificial light, suffer from the fact that no two observers have quite the same appreciation of "colour" and the plates in medical atlases commonly convey a sense of artificiality; in these illustrations this defect is hardly apparent, and anyone accustomed to the use of the cystoscope will find them helpful. The descriptions of the plates are clear and simple, free from unnecessary detail, and should be easily understood even by those who have not much knowledge of German. In addition to the atlas, the book contains chapters on the history of the cystoscope, on cystoscopic optics, and on the technique of cystoscopy; also a series of short articles dealing with the causation, diagnosis, and treatment of the anatomical and pathological conditions pictured. The chapter on optics by Dr. Hartinger of Jena is exceptionally good.

The work as a whole is a valuable addition to urological literature.

Traité d'Urologie. By G. MARION, Professeur agrégé à la Faculté de Médecine de Paris. Two volumes. With 418 figures and 15 coloured plates. Paris: Masson et Cie. Pp. 1050. Fr.120.

THESE two volumes form a valuable monograph upon the diseases of the urinary system. It is doubtful if the work will appeal strongly to the general practitioner or to the physician, for the point of view is primarily surgical and the greater part of the text is devoted to matters that will interest chiefly the surgeon specialist. In the first volume the anatomy of the urinary tract is concisely reviewed with special attention to relationships of surgical importance; among the illustrations in this section are several showing certain important anatomical features as they are exposed during the course of operations. There follows a chapter dealing with the various investigations which are commonly necessary for the diagnosis of urinary cases. English readers will notice that the author, in common with many French surgeons, does not make use of air distension of the urethra in urethroscopy. In the next section the symptoms of urinary diseases are analysed. Under the heading of pathology the diseases of each organ are described, with a discussion not only of the ætiology, morbid anatomy, and histology of each condition, but its special symptoms, means of diagnosis, and approved methods of treatment. The remainder of the second volume deals more fully with treatment and particularly with details of operative technique. Those operations which have proved most useful in the author's hands, and are recommended by him for routine use, are well described and excellently illustrated. The coloured plates of cystoscopic appearances are especially well chosen and produced. Prof. Marion has, as is well known, a wide experience of urinary disease; this treatise is a summary of that experience and the reader will value it accordingly, appreciating not least the clearness with which the author states his opinions. A short bibliography, referring only to French writers, is included in the text. There is a fair index.

Urologie des Praktischen Arztes. By Dr. FELIX SCHLAGINTWEIT, Surgeon for Urinary Diseases, Munich. Munich: J. F. Lehmann's Verlag. 1921. Pp. 135.

Dr. Schlagintweit has summarised as briefly as possible the modern methods of investigations, diagnosis, and treatment of diseases of the genito-urinary tract. He has not attempted to write a text-book for students, and throughout confines himself to such aspects of the problem as will concern the practitioner.

His instructions to patients for self-catheterisation are excellent, and his description of the two- and three-glass tests for urine exceptionally clear. It is surprising to find no mention of external urethrotomy in the treatment of impassable strictures, and in the discussion of acute retention of urine due to prostatic hypertrophy the importance of the gradual emptying of the bladder is not emphasised; and though mention is made of such disastrous occurrences as anuria and severe hæmaturia, their cause is not discussed, and the practitioner is left to infer that these are unavoidable and rare cases. The occurrence of these omissions does not alter the fact that the author has succeeded in providing the practitioner with a small handbook to which he can profitably turn in most urological emergencies.

THE AMERICAN UNIVERSITY.

An Australian View. By E. R. HOLME. Sydney: Angus and Robertson. 1920. Pp. 242. 7*s.* 6*d.*

THE author tells us in his introduction that this is "mainly a section of a report which was to present a preliminary survey of a very wide field. Large tracts of that field are not viewed at all. . . . . ." The report had its origin in a conference held in London during the war to deal with the education of university men who had been on active service, to establish an Imperial Education Bureau and to consider international university coöperation. Australia was represented on the conference by an administrative committee, and Mr. Holme's book is the beginning of a study of American universities from an Australian point of view. It treats of university government and administration, deals with State-supported and endowed universities, with matriculation requirements, with graduate work, with the institution known as the "dormitory," which is really a residential non-tutorial college for men or women, and with the university as it affects the community. Different as is the American university from modern British universities in many, and from Oxford or Cambridge in more respects, Mr. Holme impresses upon his readers that "the American graduate never seems to forget it (his university life) or to lose the feeling that it is his duty to perpetuate it and increase the numbers who may share in it."

CHEMISTRY.

The Popular Chemical Dictionary. A Compendious Encyclopædia. Second edition. By C. T. KINGZETT. London: Baillière, Tindall and Cox. 1921. Pp. 539. 21*s.*

THE task of presenting to the general public a simple description of the chemical elements, the laws and processes of chemistry, and the more important inorganic and organic compounds and their preparation and applications has been admirably performed by Mr. Kingzett with a sense of proportion and a wise discretion in the choice of subjects to be included in his alphabetical list. If journalists and publicists possessed and used the book, fewer mistakes would occur on the occasions when chemical or physical matters are referred to in the columns of the daily press. Mr. Kingzett gives the origin, description, and properties of most of the commonly occurring chemical bodies. He writes in an interesting way and materially helps the reader by the ample use of cross references. In a dictionary of this kind errors must sometimes occur, and it may happen that essentials are omitted. Thus whisky is described as "a spirit distilled from a mash of cereal grains saccharified by the diastase of malt," no mention being made of yeasts. Under the heading of malt it is stated that during germination of barley the enzyme diastase converts the starch into maltose. As a matter of fact maltose is not produced during the malting process.

We have noted other trifling errors which do not, however, materially affect the value of this excellent volume.

Public Health Chemical Analysis. By R. C. FREDERICK and A. FORSTER. London: Constable and Co. 1920. Pp. 286. 21*s.*

IN the absence of a preface it is difficult to decide for what class of reader the authors intend this volume. From the elementary instruction provided on the use of the balance, manipulation of apparatus, &c., its suitability for a student commencing quantitative analysis without the aid of a teacher might be assumed, but from the numerous analyses described it is probable that the volume was designed for a student working for a diploma in public health or an equivalent examination. The range of subjects dealt with is wide, but a curiously disproportionate allowance is made for different materials. Fourteen pages are devoted to the estimation of carbon dioxide in air, whilst the complete analysis of soap is described in 19 lines, and a tediously detailed account of the Haldane apparatus for general air analysis and its use occupies ten pages.

From an examinatqn standpoint a student following some of the instruction which is provided is not likely to meet with much success, for on p. 3 we read, "It is often better with small quantities of an infusible precipitate . . . . to weigh direct on the pan of the balance"—and this with a balance weighing to one-tenth milligramme! Further, it is highly inadvisable after estimating the alkali and fatty matter in a soap to subtract the total from 100 and express the difference as "water." The result shown in this manner may serve to impress the recipient of the analysis, but it is quite likely that the "difference" may consist of sugar, gum tragacanth, glycerine, and insoluble fillings, sometimes in considerable amounts, in addition to water. That proprietary foods "consist almost exclusively of starch, sugar and milk products, with or without malt extract," as stated on p. 226, was undoubtedly true at one time, but during recent years the addition of substances such as eggs, bone-marrow, fruit juices, &c., containing vitamins leads to complications in the analysis of such preparations for which the methods given by the authors are inadequate. There is but little foundation for the various statements made in the section on alcoholic liquids that spirits, wines, and beer are adulterated by adding methylated spirits. The unpleasant flavour imparted by this addition would deter most people from drinking beverages thus doped. In making allowance for the mineral salts found in beer when calculating the results of an analysis no mention is made of those naturally derived from the malt and hops employed, although they may amount to ten times the quantity contained in the water used in brewing. The application of the Marsh-Berzelius method for the estimation of arsenic and antimony, as described on pp. 273–276, would certainly not be adopted by anyone with experience, and the suggestion that "the process can be made roughly quantitative if carried out under standard conditions" should have induced the authors to modify their method accordingly.

The appendix provides much useful and accurate information in the form of tables, including an admirable summary of multiplication factors for the conversion of measurements. The illustrations of apparatus are good, but several of the photomicrographs are unsatisfactory. The volume as a whole contains much good material, but the unreliable accounts of methods of manufacture and insufficiently accurate methods of analysis form a serious drawback, and it is not possible to recommend the volume to a student who is not in a position to discriminate between the good and the bad.

JOURNALS.

BRITISH JOURNAL OF OPHTHALMOLOGY. January, 1922.—P. G. Doyne: The Scotomata of Tobacco Amblyopia. Since so much has been written about the early scotomata of glaucoma, it is remarkable that hitherto no study such as the present one has been published. It is perhaps not generally realised that in addition to the relative colour scotomata characteristic of tobacco poisoning, small absolute scotomata for white can frequently be found if looked for. In the early stage of the disease this scotoma often appears as merely an enlargement of the blind spot; but whereas in glaucoma this enlargement generally begins in the vertical meridian, in toxic amblyopia it is practically always in the direction towards the fixation point. In some cases there may be a separate small scotoma for white close to the fixation point, in others the whole area between fixation point and blind spot may be involved. The charts here published are a valuable addition to our knowledge.—S. Holth (Christiania): Anatomical Examination of Six New Cases of Subconjunctival Fistula Scars from Five Months to Six Years After Successful Iridencleisis or Limbal Sclerectomies in Chronic Glaucoma. The technique of Holth's operation was explained in the December number of this journal. With this article photographs of sections are reproduced which show very clearly the resulting scars both from this and from older operations. The following are the chief points demonstrated: (1) From Holth's operation of iridencleisis a subconjunctival fistula lined with pigment epithelium results. (2) From sclerectomy with a trephine the trephine opening may get gradually closed up by the growth of dense subconjunctival scar-tissue. (3) From sclerectomy by means of Holth's punch-forceps a section shows the opening covered by thickened conjunctiva but without any scar-tissue. These sections are well worth studying.—E. Berger: The Importance of Psychical Inhibition in Binocular Single Vision. The suppression of the image in a squinting eye is a well-known phenomenon, and in the case of a microscope worker with normal eyes the image on the retina of the unemployed eye is also suppressed. In the opinion of Berger this last is not so harmless as it seems, but he fails to bring sufficient evidence to prove this. The faculty of binocular vision once gained is not so easily lost, though we can understand its being temporarily deranged, especially in the case of a faculty feebly developed or acquired relatively late in infantile life.—E. Marx (Leyden): Eye Symptoms due to Osteo-myelitis of the Superior Maxilla in Infants. This is a subject which was discussed at a recent meeting of the Ophthalmological Section of the Royal Society of Medicine. Dr. Marx adds three cases and appends an analysis of the literature of this rare disease. Out of 35 cases recorded 30 developed eye symptoms, and as the disease when left untreated is a very fatal one and the swelling of the eyelids may be the chief symptom, it behoves the ophthalmic surgeon to be familiar with it. A fistula in the region of the lacrymal sac is often present and may lead to a wrong diagnosis. The sac itself is very seldom involved. In case of abscess the treatment recommended is not incision through the lower lid but through the palate and alveolar process. Exophthalmos points to the involvement of the ethmoid cells.

IN the MILITARY SURGEON for January, Lieut.-Colonel Fielding H. Garrison continues his historical study of the development of military medicine. He is now concerned with Rome, which in early days had soldiers who served as a patriotic privilege and belonged mainly to the wealthier classes. In Livy it can be traced that care of the wounded began to be thought a military necessity and a patriotic duty, and necessary to prevent demoralisation of the surviving soldiers. When Marius (100 B.C.) reformed the Roman army on a basis of voluntary service with pay, the need for medical organisation became obvious. Already the casualties had at times been enormous. At Cannæ the Romans lost 60,000 killed and 10,000 prisoners out of an army of 85,000. Rome had no school of native physicians—the doctors came from Greece, and it was not till 46 B.C. that citizenship was conferred on them by Julius Cæsar. Early in the Christian era marked solicitude for the wounded became a characteristic of the Roman emperors, and Agrippina, wife of Germanicus, attended to the wants of the soldiers, distributing clothes and medicine, while Trajan, when bandages ran short, tore up his own clothing to provide them. The Roman army surgeon was a non-commissioned officer, but carried a sword; his pay was small, but to attract him to the service he was granted certain legal privileges, and double pay if he served in the fleet. Celsus (30 A.D.) gives the army surgeon advice about the extraction of arrows and bullets (from slings); Galen (170 A.D.), who first stated the four classical symptoms of inflammation, also wrote the first notes on malingering. It was not until 200 A.D. that a State licence after examination was given to practitioners, and shortly thereafter schools of medicine were built in Rome. Each legion of 7000 men had a principal surgeon, and there was a surgeon to each of its 10 cohorts. The cohorts of the guards had each four surgeons who must be Roman citizens. Tombstones of surgeons have been discovered; one, to Anicius, aged 25, surgeon to the 1st Tungrian cohort, was found near Newcastle. There was a hospital for soldiers in each camp and another for horses; one has been excavated near Bonn, with 38 rooms, for six soldiers in each, and a dining-hall. In another, near Vienna, remains of sewers, water-piping, and a heating plant were found. The Roman army when not fighting acted as the Works Department of the Empire; the soldier was not allowed to be idle, but built roads, harbours, and temples everywhere. Colonel Garrison confesses himself at a loss to explain why an empire so carefully organised should have come to grief, and yet, perhaps, supplies the reason himself. The splendid work, which he comments upon, was being done at the periphery of the vast Empire; at the centre the conditions became rotten.

New Inventions.

FINE-ADJUSTMENT OXYGEN VALVE.

THE valve here illustrated is meant to replace those at present in use; it screws on to the oxygen cylinder in the same manner. Its action is easy and fine and the closure absolute. The spindle is rust-proof. The milled head is marked by divisions and an adjustable stationary pointer is

provided. The nose is leaded to make a gas-tight joint with the cylinder valve, and a filter is contained within it to prevent the entry of gritty particles from the cylinder itself. I believe the use of this valve will prevent waste of oxygen and give a very delicate control where such is needed.

The makers are the Condensed Gas Co., Ltd., 59–63, Grosvenor-street, All Saints, Manchester; the price of the valve is 15*s*.

—K. B. PINSON, M.B., Ch.B. Birm., M.R.C.S.

Manchester.

THE LANCET.

LONDON: SATURDAY, FEBRUARY 18, 1922.

The Cost of Health.

THE report of the Geddes Committee, as far as it deals with the Ministry of Health and the medical activities in the country, will be read by all medical men with gratification. The Committee has singled out the Ministry of Health for commendation, definitely stating that both in policy and, where possible, in administration, successful efforts to economise have been made. One such effort has been, of course, the reduction in the capitation fee for panel practice from 11*s.* to 9*s.* 6*d.*, and we may lay stress fairly here upon the fact that the credit won for the Ministry of Health has been derived from a lowering of the remuneration of the mass of men who are responsible for the major part in maintaining the health of the country. This must not be lost sight of. No grounds, it may be, for massive economy in the expenditure of the Ministry of Health have been found to exist—and this fact emerges from the actual figures—but what savings can yet be made ought to be made in any direction other than at the cost of the general mass of medical practitioners. They should not be called upon, directly or indirectly, to play any part in the future economy of expenditure until all other expedients have been tried. The last recommendation of the Geddes Committee runs as follows:—

"That in view of the whole circumstances, the Estimates of the Ministry of Health and National Health Insurance Joint Committee for the year 1922–23 should be reduced from £24,269,500 and £350,500 respectively to £22,100,000 in all, and that any necessary legislation be promoted to take effect not later than the 1st July, 1922. This reduction is apart from any savings which may accrue from the sale of houses."

The fact that on an expenditure of nearly £25,000,000 the sum of a little over £2,500,000 is estimated as the only amount that can be saved by drastic reduction is a detailed proof of economic administration; while the fact that the rank and file of the medical profession have already come under the scale of reduction thought necessary would suggest that further economies, which may have to be made, will leave the panel practitioner at least in his present financial situation.

The Committee points to the extraordinary position of financial prosperity revealed by the recent quinquennial valuation of the approved societies, whose disposable surplus will in due course be swelled by proportionately large grants from the State. The reasons for the financial prosperity of these societies are analysed in the report, and the fact is set out that the surpluses are largely due to the war. In illustration thereof it is shown that, owing to the inclusion in the health insurance scheme of members of all ages, a reserve value for each original member had to be created, while war casualties removed the necessity for much of this reserve, leaving the dependents and survivors of men, whose death actually improved the societies' financial position, as a burden on the taxpayer in respect of pensions. Much of this has already been pointed out in our columns from time to time, especially in connexion with the relations which should prevail between voluntary hospitals and the approved societies, whose debt to those institutions is incalculable. We feel strongly that a large part of any surplus in the hands of approved societies should be used for the maintenance of voluntary hospitals, and in this way economy would best be served; but we do not know whether ingenuity can suggest a method by which an orderly subsidy for the voluntary hospitals from the approved societies will relieve the estimates for the Ministry of Health. Apparently the Government actuary has reported against any pooling of societies' surpluses. The small economy which is recommended in connexion with panel practice is a reduction from £100,000 to £85,000 in respect of the payment of whole-time and part-time medical referee consultants. The report characterises these as to some extent a luxury and suggests a reversion to the plan by which societies employed their own referees. There are no part-time consultants, and the whole-time officers act not only as referees for the societies, but as the only intermediaries between the Ministry and its General Practitioner Service. The creation of these posts was subjected at the time to criticism much of which was based on misapprehension. The proper and prompt dealing with appeals by approved societies against recommendations by panel doctors is very necessary, and we doubt whether the Geddes Committee was really cognisant of the large range of delicate duties which these officers, if they recognise their own position and if it is recognised by the authorities concerned, are able to perform. If their services cannot be saved otherwise, more of the cost might be borne by the societies who stand to gain thereby.

A careful study of the report must lead the unprejudiced observer to the conclusion that the main reason for much of the criticism that has been levelled at the Ministry of Health since its formation in 1919 has been due to the fact that upon the first Minister was imposed the unwieldy burden of carrying out a system of State housing. Housing is the largest item in the Ministry of Health vote, and is estimated to entail a cost to the taxpayer of £10,000,000 a year for the next 60 years. Any criticisms of the Ministry in the future should be based on the understanding that £10,000,000 a year of the health vote will be spent on fulfilling existing commitments for housing. Only £3,000,000 represents the actual cost at the present time to the taxpayer of the public health services, apart from insurance practice and administration. And even a committee of railroad and steamship managers has declined to reduce the pace of the public health engine by supplying it with less fuel than this. "We have had submitted to us," says the report of the Geddes Committee, "a very complete account of the administrative system of the Ministry, and are satisfied that vigorous steps have been taken to reduce expenditure on staff." The sentence is an apt answer to critics who have reproached the Ministry for expenditure actually necessitated by that truest economy, the prevention of disease.

Medical Men in Parliament.

THE opening of what is generally believed to be the final session of the present Parliament suggests a consideration of the nature and function of medical representation in the legislature, and an inquiry how far this representation has met the needs of medicine and the public health of which medicine is the chief custodian. Since its foundation the Federation of Medical and Allied Societies has taken a special interest in the relations of Parliament and medicine; in a recent issue of *Health*, the official organ of the Federation, and now a substantial monthly magazine,

are set out the names, constituencies, and political parties of the 11 members of the present House of Commons who possess a medical qualification. They are :—

Name.	Constituency.	Party.
The Rt. Hon. Christopher Addison, M.D., F.R.C.S.	Shoreditch ..	Co. Liberal.
Sir Wm. Watson Cheyne, Bt., K.C.M.G., C.B., D.Sc., F.R.C.S.	Scottish Universities	Co. Unionist.
Capt. W. E. Elliot, M.C., B.Sc., M.B.	Lanark	Co. Unionist.
A. C. Farquharson, Esq., B.Sc., M.D., D.P.H. ..	Leeds, N. ..	Co. Liberal.
Lt.-Col. F. E. Fremantle, O.B.E., M.A., M.B., F.R.C.S.	Mid. Herts ..	Co. Unionist.
B. F. P. McDonald, Esq., M.D.	Wallasey ..	Co. Unionist.
Major J. E. Molson, M.D., M.R.C.S., L.R.C.P. ..	Gainsborough ..	Co. Unionist.
Donald Murray, Esq., M.B., C.M.	Western Isles ..	Liberal.
Lt.-Col. Nathan Raw, C.M.G., M.D., F.R.C.S.E.	Liverpool, Wavertree	Co. Unionist.
Sir William Whitla, M.A., D.Sc., M.D.	Queen's, Belfast	Unionist.
Sir Robert Woods, B.A., M.B., F.R.C.S.I. ..	Dublin Univ. ..	Independent.

Ten of these gentlemen are original members of the present House, Dr. FREMANTLE being the only addition to the medical group at a by-election. It has been the practice of these medical men to meet together regularly during the Parliamentary session to discuss medical interests common to themselves and to the profession at large. Dr. RAW has succeeded Sir WATSON CHEYNE in presiding at these meetings, Captain ELLIOT making an indefatigable secretary. Medical and allied societies have begun to turn to this Medical Committee for the presentation of their views in Parliament, a practice evidently capable of further extension. The meetings of the Committee have often been assisted by the presence of Sir PHILIP MAGNUS and Sir HENRY CRAIK, who as University members have for long past given helpful attention to medical matters in the House of Commons, and by the presence of Lord DAWSON OF PENN from the House of Lords. The Committee considered in their many aspects the Dangerous Drugs Bill, the Nurses Registration Bill, and the Dentists Bill, which all became law, and to its activity may well be ascribed the increase in the length of time allocated for discussion on the estimates of the Ministry of Health, although there remains much to be done in demanding opportunity for the consideration of health matters arising on the votes for other Government departments. The satisfactory solution of the position of the Medical Research Council in relation to the Privy Council and the Ministry of Health was greatly helped by the Medical Committee.

Our contemporary, *Health*, believes that the average medical man still feels and professes a profound contempt for politics and that the power of the medical group in Parliament is limited because it is a small group. The Federation at all events is doing its best to increase the medical representation in Parliament. It has four candidates in view, and we have already announced that Dr. H. P. BRACKENBURY will stand in the interests of the British Medical Association. There is a feeling in the medical group that now is the time for the medical profession to select young active men to represent it in the House of Commons, and that central organisation should now be busy in selecting medical representatives. Three of the limited number of medical members at present represent University constituencies, a circumstance fortuitous rather than permanent, and it is quite certain that medicine in the House of Commons will have to rely upon qualified men elected in the ordinary way by constituencies to represent them as citizens and not primarily in a medical capacity. Much depends upon such direct representation, although it should be remembered that it is equally important to imbue the general tone of public political thought with the need for attention to health matters. While medical men in the Commons must remain representatives of a mixed electorate and cannot be delegates of medicine, there are many who feel that public health cannot be left to chance or a casual representation in the legislature. In Lord DAWSON the House of Lords possesses a member who is to all intents a nominee of medicine and has construed the obligations of nobility in a free and serviceable manner. By some in and out of Parliament it is thought that medicine has a right to professional representation on a much larger scale in the Upper House, where the Church, the Law, and the fighting services figure so largely. Here is a chance in connexion with any proposed reforms of the Lords, whatever direction they may take. It may be said without cant that medicine if more abundantly represented is less and not more likely to be concerned with professional interests rather than with the health of the nation, which is a common interest of all members. The ear of both Houses has been increasingly open to medical members, not, we believe, on account of their oratory or persuasiveness, but because their fellow members are becoming keenly interested in matters of health and hygiene. There is said to be something in their turn of mind which prevents medical men from being good politicians; that may be so, but in the session which is drawing to a close they have been recognised as good citizens in both Houses of Parliament. There are many who think that the pure politician is the curse of politics.

Do Men Grow Old More Quickly in Towns?

THE use of death-rates as a guide to hygienic conditions in the community is a very practical question. Dr. JOHN BROWNLEE deals with it from many aspects in his report[1] to the Medical Research Council, and the biological conception of statistics which underlies the method adopted by him in this report is interesting and valuable. The national life-tables, prepared by Mr. GEORGE KING for the Registrar-General, show relative expectation of life at different ages, and inter alia the aggregates of rural districts and of county boroughs. At the age of 15 the rural male's expectation of life is nearly two and a half years higher than that of the inhabitant of county boroughs at the same age. At the age of 40 the corresponding expectations are 25·80 and 30·35 years; at 55 they are 15·48 and 18·63 years respectively, and so on. That is, life on the average is shorter in town than in country; and this fact may, perhaps, be put justifiably in Dr. BROWNLEE'S words: "It has been rendered probable that the inhabitant of the country is at these ages" (between 55 and 65) "biologically about six to seven years younger than the inhabitant of the town." But the question remains as to the cause of the greater incidence of premature death in towns. Dr. BROWNLEE gives an unhesitating opinion on this point. Thus dealing with valvular disease of the heart, which has a higher standardised death-rate (allowance therefore having been made for variations in age-constitution) in county boroughs than in rural districts in the proportion of 85 to 62, he concludes that the amount of this disease is much the same in all districts when judged by the life-table death-rate;

[1] The Use of Death-Rates as a Measure of Hygienic Conditions. By John Brownlee, M.D., D.Sc. Special Report Series, No. 60, of Medical Research Council.

and that it "is not a matter of more of the disease being present in a city, it is rather a matter of the disease developing at earlier ages." This method of stating the case appears to us to minimise the impetus to further inquiry into the reasons why at each successive age-period, right up to the age of 70, the recorded rural is much lower than the urban death-rate from heart disease. Dr. BROWNLEE'S view is that premature ageing of the tissues is an important factor in the earlier age at death in towns. Does this statement help us much? The fact is obvious that if death is preceded by senescence, senescence is earlier in urban than in rural communities. But by the term senescence we are led to think of processes which are approximately normal as age advances. Some of these may be pathological in reality and belong to the same categories as the injuries—pathological invasion by microbes, mechanical injury, or toxins—which shorten life before old age. But to rest content with the proposition that urban life means premature old age stops short of investigation which may lead to the discovery of the maleficent agents producing premature old age. In cancer it may be a dietetic error. An excessive meat diet and the influence of alcoholic or nicotine excess have been suggested in this connexion. Rupture of a cerebral artery in a man aged 45 is commonly caused by syphilis; but no help is given by describing it as early senescence. Scientific knowledge is extended by increasing differentiation of causes, not by being contented with any readily acquired generalisation, whether it is senescence, or ascites, or marasmus, or malnutrition, or poverty, or any other medical or social complex.

SALVARSAN FRAUDS IN GERMANY.

IT came out at the All-America Conference on Venereal Diseases, held a year ago in Washington, that some of the unlicensed preparations of arsenobenzol on the American market contained no arsenic or indeed any curative agent at all. In the land of their origin, too, the organic arsenic compounds have suffered at the hand of the charlatan. Last November important criminal prosecutions of persons engaged in the sale of salvarsan imitations were conducted in Hamburg, and the results should do much to clear the air of the rumours afloat about the toxicity and uselessness of the genuine salvarsan preparations. The proceedings, which lasted for more than 14 days, dealt with the frauds perpetrated in 1919 and 1920 both in Germany and beyond its borders. The two principal agents in this traffic received heavy sentences; each was given three and a half years' imprisonment, in one case with hard labour. They were also deprived of their civic rights for five years. Sixteen of the accused were given terms of imprisonment up to two years, and 62, who had acted as agents in distributing the fraudulent imitations, were fined, the maximum fine being 20,000 marks. Six of the accused were acquitted. The imitations of salvarsan consisted of worthless and even injurious substances which were soluble in water and closely resembled true salvarsan. Much ingenuity had been shown in imitating the labels and other paraphernalia of the genuine article, and owing to the demand for salvarsan being considerably greater than the supply, a most lucrative traffic had grown up, and the surreptitious sale of the imitations had assumed enormous proportions. Circumstances which were considered to have aggravated the crime were the injuries inflicted simply for the sake of gain on the health of human beings and on the good name of a German industry. With regard to the latter point it should be remarked that these frauds may largely have been responsible for the rumours that German manufacturers of salvarsan were waging a surreptitious war on foreigners by exporting poisoned drugs.

Annotations.

"Ne quid nimis."

THE HYGIENE OF GAS-HEATING.

IN these days when we are all exhorted not to burn valuable raw coal but to use one of its products—namely, gas—it behoves us to see that the people who take this advice do not thereby come to harm. More than one make of gas fires has recently been put on the market the makers of which offer as a recommendation that they are "odourless," a term thought by many of the public to mean free from products of combustion. This idea is fostered by the advocacy of the use of flueless stoves. Obviously a serious risk occurs when flueless stoves consuming an amount of gas by no means small are used in bedrooms and other small, ill-ventilated rooms occupied by human beings. Even in large rooms, if many persons be present, the use of the ordinary gas radiator is not without its dangers; in these the heat is derived from the contained water, which is itself warmed by a bunsen flame, and such radiators are not as a rule provided with flues. Recently at a whist-drive, held in a London suburban dance-hall and attended by 120 people, shortly before the interval several complaints of headaches were made; soon after, one person fainted, others followed, the syncope being accompanied in some instances by vomiting. Many who did not faint felt unwell. In not a few instances the sufferers were not well enough to rise the next morning, and the effects were felt for a few days. The hall was heated by eight gas radiators: in consequence of the inclemency of the weather they were lit at an early hour and the room made as warm and cosy as possible by carefully closing all windows, curtaining the doors, and stopping the electric fans. The trouble was possibly due in part to the lack of ventilation unaided by the products of combustion of coal-gas, yet it is difficult to doubt that these played a part, and not a small part, although such incidents are very rare and absence of ventilation has been common, especially up to a few years ago, in large places of amusement. A matter requiring unbiased investigation is the advisability of allowing gas-cooking stoves to be placed in houses without some suitable arrangement to carry off the burnt gas. These are now found on landings, in sculleries, and kitchens, especially in "houses let in lodgings" and in houses converted into flats of a kind. Obviously, no carbon monoxide gas can be present in the fumes of burnt gas, any monoxide present in the unburnt gas being converted to dioxide during combustion, but unfortunately the apparatus for the supply of gas to be burnt in gas-stoves is not always satisfactory. A flexible tube that anyone can trip over or pull upon and break will hardly remain gas-proof indefinitely, and where carburetted water-gas is supplied the danger is increased. Gas, of course, can be used safely as a heating and warming agent, but its extended use requires a certain amount of care and management which are not always exercised.

TUBERCULOSIS FOLLOWING CIRCUMCISION.

THE primitive methods of performing circumcision still in vogue in many parts of the world give plenty of scope for the admission of all manner of virulent infections, and it is perhaps strange that more cases of infected circumcision wounds are not recorded. That the diagnosis of tubercle of the penis is by no means easy is illustrated by two cases recorded in the final issue of the *Berliner klinische Wochenschrift*, dated Dec. 26th, 1921. This excellent journal, we may remark in passing, has succumbed to the difficulties through which, in Germany as well as elsewhere, many professional papers are passing, leaving the *Deutsche*, the *Münchener*, and the *Medizinische Klinik* in the field. The Berlin Medical Society has transferred its official connexion to the last named of these three. The cases

to which allusion is made are as follows. Two infants were admitted to a children's hospital in Berlin suffering from a condition of the penis that was diagnosed as primary syphilis. Circumcision had been performed three weeks previously on both babies by a travelling Galician Rabbi, whose method of arresting hæmorrhage consisted in sucking the wound. Both children were healthy except for the local lesion and came of healthy parents. In spite of negative Wassermann reactions and the failure to demonstrate the spirochæte, antisyphilitic treatment was carried out for a time. Since no benefit accrued, a portion of the lesion was excised and microscopically diagnosed as tuberculous. Treatment proved unavailing until X ray therapy was resorted to, when both children showed immediate and rapid improvement. Unfortunately, broncho-pneumonia carried off one child, on whom the autopsy revealed no tubercle of the internal organs. The other child continued to improve, until at the time of the report he was one year old, and in good condition, although rather undersized for his age. Out of 58 cases of circumcision tubercle collected from the literature, 46 only came under observation up to the end of their first year. Of these 29 died, mostly of miliary tuberculosis, tuberculous meningitis, tuberculous peritonitis, or secondarily infected adenitis of the inguinal regions. Comparing the fate of those who lived (37 per cent.) with that of children who acquired tuberculosis through the respiratory tract, the prognosis of circumcision tubercle appears to be much more favourable. Hahn gives the percentage of children alive at the end of their first year, when tubercle of the respiratory tract has been diagnosed within that time, as 16·7 per cent., and Pollak puts it at 14·3 per cent.

PUBLIC HEALTH RECORDS IN THE PHILIPPINES.

THE Philippine Health Service may be regarded in American parlance as a "live wire," thanks largely to its American background, and two reports which have recently come to hand furnish good evidence of this. The first of these is the annual report for 1920 of the Philippine Health Service, which gives in some 500 pages a detailed account of many aspects of the work which is being done to rid the Philippines from cholera, typhoid, and other endemic diseases. The form of the report is a little disappointing, for it appears to emphasise unduly the technically statistical aspects, and to give somewhat insufficient detail as to the work of epidemiological investigation which presumably is being carried on. The bulk of the annual report is increased by elaborate diagrams, evidently reduced from larger photographs with resultant obscuration. There is a good deal to be said regarding the use of "normal health indices" on which much stress is laid in the report. This index is the average annual death-rate for each month during the past five years, for say the month of January; and the rate for January of the current year is plotted out on a curve, so that it may be seen at a glance whether there is an excess in the death-rate for that month or not. Such a plan has much advantage from the standpoint of central administration. It serves to draw attention to epidemic excess of disease. We note, however, that it is being used in the different localities throughout the Philippines; and a special instructor has been detailed to instruct local officers in the use of the method. And it is at this point that a gentle caveat may be entered. There is a definite risk of folded arms and inertia, so long as the current month's mortality does not exceed the average mortality for the same month in the past five years; whereas the primary duty of a health officer is to investigate the facts concerning every case of cholera and typhoid fever and other preventable diseases, and take for each case the necessary steps for removing the cause and preventing the spread of infection. This ought to be done irrespective of any average statistical datum line. We are willing to believe it is being done in the Philippines, in which case the use of a "normal health index" is harmless, although the adjective "normal" is hardly in place.

The other report we are here noticing is the first of a new series of Health Bulletins of the Philippine Health Service, which now appears monthly instead of quarterly. It contains much valuable information within 47 pages, of which 26 are occupied by an elaborate statement of the number and causes of death during the month of July, 1921, arranged according to nationality of the deceased. The tabulation according to causation is that of the Bertillon International Classification. It consists of 189 items, and passing from page to page, we find a wilderness of dashes with an occasional entry of units. This is not surprising when, on turning to the last column of the last page of the table, we learn that the total deaths in the month were 111, an average of less than one for each enumerated cause of death. The utility of such elaborate monthly tabulation is more than doubtful. For current public health purposes, a statement of the chief infectious diseases would have sufficed. On this point the Philippine public health service might take a hint from the English Ministry of Health, which has recently instructed medical officers of health to reduce the elaboration of the tables in their annual reports, presenting more elaborate statistics in a quinquennial survey in 1927. This means that exact statistics must be kept continuously; but they need not be printed, until their publication is of public service.

APPLICATION FOR HOSPITAL GRANTS.

IN accordance with the recommendations of the Cave Committee, the Voluntary Hospitals Commission have taken steps to establish local hospital committees throughout the country. In many counties these committees are already at work and in others they are nearly complete. In only two counties has it definitely been decided not to establish committees. The Hospitals Commission desire to make it known that any applications for emergency grants required before the end of the financial year, which is completed on March 31st, should be made as early as possible. All applications must be made through the local committee for the area in which the hospital is situated. Hospital secretaries who are in doubt whether a committee has yet been established in their area should communicate with the clerk to the county council, or in the case of the larger county boroughs with the town clerk.

AN ANOMALOUS ODONTOMA.

AN odontoma presenting interesting features is described by Mr. J. H. Mummery and Mr. A. T. Pitts in the *British Dental Journal* for Jan. 16th. The tumour, of irregularly rounded shape, was composed of a calcified mass enveloping the roots of the right maxillary deciduous molars. A section through the growth showed that it was composed of a homogeneous mass of cancellous bone enclosing an area of tissue of soft consistency. Histological examination revealed osteoclasts and an abundance of polymorphonuclear leucocytes in the softened area, which was presumably undergoing secondary degeneration. The pulp tissue was altered in character, the portion towards the occlusal surface having undergone fibroid changes, while the lower or basal portion was replaced by bony tissue, apparently continuous with the cancellous tissue surrounding the roots. There are certain features about this tumour which make it a little difficult to place it in relation to other growths connected with the teeth. The fact that the tumour shelled out easily from the jaw showed that it did not form part of the maxilla, and it would therefore seem to be of the nature of an odontome. Bland-Sutton has described an odontome as "a tumour composed of dental tissues in varying proportions and different degrees of development, arising from tooth germs or teeth still in the

process of growth." The whole question, therefore, whether this tumour can be regarded as an odontome depends upon what should be included in the term "tooth germ." It has been shown that in certain mammalia, at one period, a portion of the bone surrounding the developing tooth germ is entirely separate from the body of the jaw, and would therefore seem to arise from some portion of the tooth germ itself; and the portion that it would arise from would be that part which is usually known as the follicle. If this view of the formation of a portion of the bone surrounding the developing tooth germ is accepted, then the fact that the tumour in this case was composed of cancellous bone can be accounted for, and the tumour should be classed as a follicular odontome.

LYMPHADENOMA AND VACCINATION.

THERE are few recognised contra-indications to vaccination if we except the infectious skin diseases and conditions peculiar to infancy. The report made by MM. Felix Ramond, Charles Jacquelin, and Borrien at the session of the Société Médicale des Hôpitaux, on Jan. 13th suggests a contra-indication to which no previous allusion appears to have been made in medical literature. These authors record three cases of lymphadenoma in which the local reaction was very severe and the general reaction sufficient to cause death in two of the cases, while the third had a narrow escape. The two fatal cases were both shown by blood counts to be suffering from lymphatic leukæmia. In the third case the blood count was normal. In all the three cases the scarring took place without incident or delay; the question of death by sepsis therefore did not arise. The first patient survived vaccination by a month, the second by 12 days only. The general symptoms were high fever and rapid wasting; unfortunately no post-mortem examination was possible.

THE HEREDITARY ELEMENTS IN THYROID DISEASE.

THE annotation in THE LANCET of Jan. 7th on Dr. Pierre Vallery-Radot's article on the Rôle of Heredity in Thyroid Pathology suggests some further observations on this obscure subject. The greatest difficulty we have to face in the elucidation of the problem is that so far we have a very incomplete understanding of the precise physiological functions of the various endocrine glands. What we do know, however, of the physiology of thyroid function enables us to formulate some theory which will explain the influence which the thyroid exerts on infantile development and its rôle in heredity. Clinical evidence points to the thyroid as the great exciter of metabolic changes in the body which affect all tissues. In addition to this there is also reasonable evidence that the thyroid has a definitely stimulating effect on lymphatic function and activity. If the whole function of the thyroid were confined to these two effects it would be sufficient indication of its value in the growth of the body. One cannot but realise that backward children invariably show not only deficient metabolic activity, but also a very sluggish lymphatic function. It is only necessary to point to the value of iodine and thyroid extract in adenoids and the various chronic affections of the lymphatic glands in children to illustrate this point, and it would be possible to enlarge this illustration by reference to numerous other affections of childhood in which thyroid has therapeutic value.

The rôle of heredity in thyroid affections presents a different problem, but some assistance to the solution is suggested by J. T. Cunningham in his book "Hormones in Heredity." The essence of this theory is, so far as it concerns this discussion, that all the parental hormones are represented in the germ cell, and in proportion to the amounts or degree of activity of the hormones of each parent. Hyperthyroidism in the female parent will therefore tend to excite an increased thyroid hormone response in the ovum. But both parents are represented in the fecundated ovum, so if the male parent is a hypothyroid subject, the hyperthyroidism of the female parent would be neutralised by hypothyroidism of the latter. This theory does offer a reasonable explanation of dissimilar heredity when the subject is viewed from the pluriglandular standpoint, for if all the hormones of both parents are represented in the plasma of the germ cell, their influence will be in proportion to the combined hormonic constitution of the parents. The cause of thyroid affections is not definitely known, and the theory provides only a hypothetical explanation. All chronic affections such as syphilis, tuberculosis, alcoholism, or prolonged acute affections must have an exhausting effect on thyroid activity. The resulting hypothyroidism must have its influence in diminishing the thyroid hormone response on the germ plasma, provided the other parent is not able to supply the deficiency and adjust the hormonic balance. The position is complicated by the fact that in the germ cell are represented all the parental hormones, making it difficult to separate one particular hormone as having a predominant influence on the factors underlying hereditary transmission.

BACTERIAL FOOD POISONING: THE CLITHEROE OUTBREAK.

LAST September an extensive outbreak of bacterial food infection occurred in Clitheroe. It is not clear if every case was ascertained, but there were 54 known cases in 15 families. The symptoms were of the usual type found in this form of outbreak, the prominent ones being marked diarrhœa, vomiting, thirst, some measure of abdominal pain, and usually a moderate rise of temperature. Drowsiness and a marked "typhoid" state was reported in the more severe cases. Two cases terminated fatally. The incubation period was about 24 hours in the majority of cases, in a few it was longer, and in only one less than 24 hours. Very early in the inquiry it became evident that all the sufferers had eaten potted meat (beef brawn) obtained from a shop in the town. Every one of those attacked had eaten this food, but four persons who ate it escaped illness. The bacterial cause of the infection was fully ascertained, since the bacteriologist isolated the same organism from the potted meat, from a sample of fæces from one of the cases during the acute stage, and from the internal organs (spleen, liver, and kidney) of one of the fatal cases. The bacillus was a Salmonella strain, which was subsequently identified by serological tests as a *B. aertrycke* (mutton) organism.

The report of Dr. W. E. Barker, M.O.H. for Clitheroe, to his council shows that great endeavours were made to trace the source and paths of infection. The potted meat itself was good in appearance and taste, and only one sufferer noticed anything peculiar about it. It was made in Clitheroe on the premises of a local caterer and confectioner. The premises were well kept and clean when inspected, and no gross sanitary deficiencies were detected. The only thing criticised was the large number of flies about the premises. The meat used in its manufacture was obtained from a local butcher of good repute, and his premises were found to be clean and satisfactory. The beef used consisted of portions of a heifer purchased in Salford Market on August 16th. From the inquiries made it would appear that the rest of the animal was eaten without harm. The meat was cooked within 15 minutes of reaching the caterer's shop. The methods of preparation are described in the report, and were of ordinary type to which no exception could be taken. The meat was thoroughly cooked, minced, mixed with stock, and then transferred into moulds of varying capacity. According to the inquiries the interval between the completion of the mincing and the transference into moulds was about half an hour or so. This point is of importance, since the evidence is that all the small moulds were

infected, and therefore the infection must have taken place while the meat was all together. If the cooking was thorough, and the report speaks of a temperature of 500° F. for five hours, this localises the time of infection to the period subsequent to cooking but before distribution into the moulds. A number of investigations were instituted to try and trace the source of infection, but without success. One employee gave a history of illness of obscure type three days before the outbreak, and a very thorough bacteriological investigation of this case was made to find out if he was a human "carrier" and the source of infection, but the results were negative. The only suggestion Dr. Barker is able to make as to the source of infection is that the minced meat in the large bowl was infected by flies, but it is difficult to account for the very thorough infection of the meat in so short a time, an infection so thorough that every mould of the food was infected.

While the type of the outbreak was not materially different from that of other outbreaks there are several points of interest. One is that, unlike many outbreaks, infection originated on premises which are described as high class, clean, and satisfactory. As in so many other instances, the incriminated food was perfectly normal in appearance and taste. The noticeable feature of the outbreak was the thorough way in which it was handled, and the very comprehensive inquiries which were made into all possible sources of infection. This was only possible because of the improved system of investigation now practised. The investigation was undertaken by a medical inspector of the Food Department of the Ministry of Health, as well as by the medical officer of health, working in conjunction with Dr. W. G. Savage and his pathological staff, as part of the combined inquiry[1] into the problem of bacterial food poisoning, inaugurated by the Ministry of Health and the Medical Research Council. That this team of workers found out so much is a source of congratulation, but it is a striking illustration of the difficulties of the problem that nothing definite was effected in tracing the path of infection. It is evident that until more is known as to these channels of infection, outbreaks of this character cannot be foreseen or prevented.

Dr. Barker is to be congratulated upon the thorough way he has put together his report.

TETANY AND THE PARATHYROIDS.

ALTHOUGH the occurrence of cachexia strumipriva after partial thyroidectomy is now extremely rare, cases do still from time to time appear. A case of acute tetany in a young woman last summer caused Professor von Eiselsberg to look through his previous cases, and in a paper in the *Wiener klinische Wochenschrift*, of Jan. 5th, he reports six cases of death from post-operative tetany, occurring among 2588 partial thyroidectomies performed during the last 20 years. In addition to these he cites two fatal cases operated upon in Billroth's time, and still another which occurred elsewhere in Vienna. Nine cases of non-fatal but long-continued tetany are also recorded.

A specially interesting case was that of a woman who was under observation from the age of 17 to the time of her death at 54. In 1882, when 17 years old, she underwent a complete excision of the thyroid gland. Three days later, tetany supervened, and persisted for two years, after which time she regained her health until 1892, when a severe attack of tetany occurred after a confinement. The patient attended the clinic for organo-therapy without much benefit. In 1907, as there was no parathyroid tissue available, a piece of normal thyroid, removed from another patient, was transplanted, one piece into the peritoneal cavity, and a second piece extraperitoneally into the abdominal wall. Recovery was uneventful, but no improvement took place. Later a second transplantation, this time of parathyroid tissue taken from a patient with a cystic goitre, was performed. The tetany entirely disappeared for a period of six years. Then slight paresis of the right foot developed, which yielded somewhat to parathyroid therapy, but did not clear up. Thereupon a second implantation of parathyroid from a patient who had just died was undertaken. The wound suppurated slightly, but nevertheless undoubted improvement followed. The patient relapsed later and was again admitted to the clinic, and treatment by a cereal-free diet gave excellent results. The price of meat, however, did not permit the patient to continue the diet, and after her discharge from the clinic severe attacks became frequent. Some time later improvement followed an attack of pneumonia, during which the patient was again admitted and treated by thyroid therapy. No disturbance of the eyes took place. In 1918 the symptoms of tetany disappeared and were replaced by those of epilepsy, and in January, 1919, the patient died. At the autopsy, a defect in the thyroid gland was revealed, a right-sided ovarian cyst, the size of a child's head, and in the region of and adherent to the gall-bladder a tumour the size of a hen's egg, which proved to be the thyroid, implanted 12 years previously. Over a 1000 sections of the tissue were cut, showing numerous round follicles, of various sizes, filled with colloid. Well-marked exuberant proliferation of the secreting cells was present, associated with active colloid production.

The case is particularly interesting because the implanted thyroid tissue not only lived 12 years, but also exhibited the function of the thyroid. Further, the prompt effect of parathyroid implantation is remarkable, as is also the immediate effect of extirpation of the parathyroids. Among the other cases reported by von Eiselsberg, is one of a cook, aged 32 years, in whom chronic tetany occurred, first thyroid and then parathyroid were implanted, and improvement took place. Later, attacks of tetanic cramps occurred in cold weather, but were amenable to thyroid tablets. According to von Eiselsberg, patients must be kept under observation for many years before tetany can be regarded as cured with any certainty. Any attempt to divide cases into "slight" and "severe" has been abandoned by him, since cases which are regarded as slight occasionally become severe many years after the original operation. In the nine fatal, and nine non-fatal cases reported, cataract was observed four times. A fifth case of cataract occurred in a case of spontaneous tetany. Von Eiselsberg fears that, as bilateral partial excision of the thyroid is increasingly practised, the occurrence of tetany will become more and more frequent, and emphasises the fact that the only really effectual treatment of the condition is prophylaxis. When tetany is once established, he recommends the following medical measures: (1) Parathyroid tablets, (2) calcium lactate, up to 30 g. pro die, (3) afenil (urea calcium chloride) intravenously, (4) chloral hydrate per rectum, (5) cereal-free diet (A. Fuchs). Only in cases where medical treatment has failed should the question of transplantation be considered. In von Eiselsberg's practice thyroid tissue has been implanted once with some effect, and parathyroid from the living subject eight times in seven patients. The graft lived in seven cases, in which three were improved. Three cases were not affected, although the wound healed by first intention, and in one case the patient died 55 days after the implantation from pneumonia. Two grafts taken from new-born infants just after their death were ineffectual; three were taken from adults, just after death, in one of which suppuration occurred. Two grafts from apes were used without effect. Our present knowledge of the subject is still scanty. Further study of the anatomy of the parathyroids, of their number, distribution, blood-supply, and variability is badly needed.

[1] THE LANCET, 1921, ii., 719, 727.

THE TUBULAR BREATHING OF PNEUMONIA.

THE well-known tubular breath sounds, heard in the course of pneumonia over the affected lobe and generally accepted to be simply the propagation of the laryngeal and tracheal sounds through the bronchi and consolidated lung tissue, must now, it seems, discover another raison d'être. Prof. E. Weill[1] has been correlating the appearance of consolidation, as shown by the X rays, with the findings on auscultation, and he states that there may be not only consolidation without tubular breathing, but

[1] Le Journal de Médecine de Lyon, vol. ii., No. 46, p. 1363.

also tubular breathing before the appearance of consolidation. He quotes a single case which in the two different lungs illustrated both phenomena at the same time. In this case, as he points out, a radiologist would have found pneumonia on the right side only, while a physician, relying only on his stethoscope, would have found a pneumonia limited to the left side. As a general rule, when both shadow and tubular breathing are found on the same side, the altered sounds are found around the circumference and not immediately over the shadow. Prof. Weill hazards a suggestion that in life the process of consolidation is not precisely the same as that found post mortem. The alveoli, he thinks, may be filled with a fluid "more or less dense or gelatinous and inelastic," while some changes in the surrounding tissue render them good conductors of sound. A more practical conclusion is that the X rays should be used in diagnosis, especially in suspected pneumonia of infants.

THE LABORATORY INVESTIGATION OF INTESTINAL BILHARZIOSIS.

THE diagnosis of intestinal bilharziosis is difficult: the symptoms are not always arresting or very characteristic, nor is it as easy to find the ova in the stools as it is in the urine. Direct search for ova in fæces, where they are few, means the examination of many specimens, and that takes a long time, so a concentration method is urgently needed. Prof. Fülleborn, of the Hamburg Institute for Tropical Diseases, from whom we quote,[1] finds the Telemann method to be of use—he is surprised it seems to be so little known outside Germany. Fæces are shaken with a mixture of concentrated hydrochloric acid one part, water one part, ether two parts, and strained through gauze; the filtrate is centrifuged and the deposit is microscopically examined. Bilharzia eggs are of high specific gravity. If fæces are shaken with concentrated salt solution ankylostoma and ascaris eggs float to the top and may be removed on to a slide by a wire loop, but bilharzia eggs fall to the bottom, where search for them is very tedious. To be sure if the salt solution deposit is flooded with water the miracidia will escape from the ova, but in the thick, or even in a dilute suspension they may escape notice. To avoid this Prof. Fülleborn recommends the following procedure devised by himself. Fæces to the volume of a hazel nut are put into a conical glass, and there very carefully rubbed up with a glass rod and a little 2½ per cent. salt solution; when a fine emulsion is made the glass is filled with salt solution, and put away to settle, in the dark, for five minutes. The solution is poured off the sediment, and this is repeated two or three times. Bilharzia ova remain in the sediment, which is next flooded with distilled water at about 120° F. and exposed to a bright light. The miracidia now escape in a few minutes from the ova and are easily seen with a lens, particularly against black paper, or if a few drops of Giemsa's solution are added to the water. If this water be poured off and perchloride of mercury solution added the miracidia are killed and are found in the sediment. This is confirmatory.

THE American Public Health Association, approving of the proposal of the Republic of Panama to erect a Gorgas Memorial Institute in the city of Panama, has resolved to coöperate with the officers of the institute in the effort to raise an endowment fund of $6,000,000.

A FREE course of lectures on Social Hygiene is being given at the Sorbonne with the authority of the Council of Paris University and under the patronage of Prof. Léon Bernard. The lecturer, Dr. Sicard de Plauzoles, entitles the course "The Campaign against the Social Diseases."

[1] Arch. für Schiffs- u. Tropen-Hygiene, 1921, part xi., p. 334.

ECONOMY IN HEALTH ADMINISTRATION:
INTERIM REPORT OF COMMITTEE ON NATIONAL EXPENDITURE.

THE first and second interim reports of the Committee on National Expenditure appeared on Feb. 10th and may be obtained at H.M. Stationery Office for 4*s*. (Cmd. 1581) and 3*s*. (Cmd. 1582) respectively. The Committee, which consisted of Sir Eric Geddes, Lord Inchcape, Lord Faringdon, Sir Joseph Maclay, and Sir Guy Granet, with Mr. Gerald Stiel as secretary, was appointed to make recommendations to the Chancellor of the Exchequer for effecting forthwith all possible reductions in the national expenditure of supply services, having regard especially to the present and prospective position of the revenue.

Total Cost of Social Services.

Part II. of the second report deals with the Social Services, under which term are included Education, Health, Labour, and Old Age Pensions. An introductory note points out that the provisional estimates of the cost of these services in 1922–23 amount to nearly four times the pre-war expenditure, the approximate figures being as shown in Table I.

TABLE I.

—	1913–14, Audited expenditure.	1921–22, Estimate.	1922–23, Provisional estimate.
	£	£	£
Education	17,200,000	60,500,000	59,300,000
Health	5,000,000	29,000,000	27,900,000
Labour	900,000	21,500,000	14,500,000
Old Age Pensions ..	9,800,000	21,700,000	22,300,000
	32,900,000	132,700,000	124,000,000

The reductions proposed by the departments for 1922–23 as against 1921–22 amount to £8,700,000, or 6½ per cent., a figure described in the report as doubly disappointing as it is actually less than the saving which will automatically accrue from the reduction in the cost of services arising out of the war—building subsidies and training of ex-Service men.

Principle of Grants-in-Aid.

In regard to the total expenditure of £87,000,000 in respect of education and health the report points out that nearly £67,000,000 represents contributions towards the expenditure of local and other authorities. The bulk of these contributions is now on the basis of percentage grants, which the report characterises as a "money-spending device," adding:—

> The vice of the percentage grant system is that the local authority, which alone can really practise economy in these services, loses much of its incentive to reduce expenditure, especially when the larger proportion is paid by the taxpayer through the exchequer. The deciding voice as to what money shall be spent is not that of the Government or the House of Commons, but that of the local authorities. The departments are thus in great difficulties in framing estimates, for these are based on anticipations not of what the department itself will do, but of what hundreds of local authorities may do. The weakness of divided responsibility is manifest throughout.
>
> If the Government were to attempt to impose a real and effective check from the point of view of efficient administration as well as audit, it would result in an enormous increase in bureaucratic control. It would mean a detailed scrutiny of accounts and an examination of all new expenditure. This would tend to overload the central machine, diminish local responsibility, and lead to greatly enhanced administrative cost. We do not suggest that the local authorities are negligent, nor do we suggest that they have not been directed to incur expenditure in conformity with a policy which, if left to themselves, they would not have incurred. We consider that the percentage grant should be abandoned in the interests of economy and be replaced by fixed grants or by grants based on some definite unit.

The report states that the increased charge to the taxpayer in regard to certain social services has been accompanied by the following very large increases in

the sums otherwise raised from the public for the same services :—

Expenditure borne by Local Rates in respect of—

	1913–14	1921–22
Sanitary services, hospital and other personal health services, lunacy apart from pauper lunatics	£15,600,000	£28,000,000
Housing	300,000	1,200,000

Contribution from Employers and Employed Persons.

Health Insurance	£17,800,000	£24,500,000
Unemployment Insurance ..	1,700,000	28,400,000

Ministry of Health Estimates.

The provisional estimates by the Ministry of Health for 1922–23 compare with the corresponding expenditure in 1913–14 and with the current year's estimates as shown in Table II.

TABLE II.

—	1913–14.	1921–22.	1922–23.
	£	£	£
Administration ..	593,878	2,298,748	1,564,000
Housing (recurrent) ..	—	5,110,000	9,650,000
Public Health	117,162	3,083,500	3,583,500
Insurance	3,501,255	8,842,550	7,802,000
Gross ordinary services	4,212,295	19,334,798	22,599,500
Net ordinary services*	4,206,663	19,152,098	22,504,500
War Services.			
Housing (non-recurrent)	—	10,000,000	2,750,000
Other	—	43,000	15,000
Gross war services ..	—	10,043,000	2,765,000
Net war services* ..	—	5,093,000	1,765,000
Net total services ..	4,206,663	24,245,098	24,269,500
National Health Insurance Joint Committee	250	500,500	350,500

* After deducting appropriations-in-aid.

The recital of the bare figures shown in Table II. may, the report admits, give a somewhat misleading impression and the statement follows :—

We were struck, in the course of our examination of this vote, by the fact that strenuous efforts have recently been made to secure savings, though these, unfortunately, are not sufficient to reduce the total of the vote, owing to obligations previously incurred in other directions. Nevertheless, over £3,000,000 have been saved by a restriction of the housing programme, and a further £1,000,000 by a reduction in the capitation rate paid to doctors under the Health Insurance Scheme.

Cost of Administration.

The Committee had submitted to it a very complete account of the administrative system of the Ministry of Health and is satisfied that vigorous steps are being taken to reduce expenditure on staff. It goes on to comment thus on points of detail :—

Medical Referee Consultants (£100,000).—This provision is in respect of 36 whole-time doctors and a number of part-time doctors who deal with appeals by approved societies against recommendations of panel doctors in cases where there is a dispute as to whether a man's health is such as to require sick benefit. They also supervise medical benefit and do a certain amount of general medical work for the Ministry of Health and other departments. The whole-time doctors are on a five-years' engagement as from October, 1920. We understand it is hoped to reduce the sum of £100,000 provided under this subhead to £85,000 gross, and to recover from societies £7500 by way of fees.

It appears that the referees are to some extent a luxury. The societies might revert to the old plan of employing their own referees, which would be less expensive to the taxpayer. If this were done, the position of these doctors should be examined with a view to ascertaining what it would cost to terminate their engagements and in the alternative whether it would be possible to transfer them to any other Government department which requires whole-time medical staff, for example, the Ministry of Pensions, which has a large temporary staff.

Index Clearance Branch (£30,000).—The position of this branch, instituted in order to meet an objection on the part of medical practitioners to the manner in which the funds available for medical benefit were distributed among individual practitioners, is under consideration by the Minister with a view to its abolition, if possible. Unless very strong reason can be shown for the continuance of this branch at public expense, we suggest that it should be discontinued. Such an arrangement is not now found necessary in Scotland.

Public Health Services (£198,000).—This staff includes the doctors who inspect the various health institutions and whose services are required largely as a result of the State's percentage grant to the local authorities. If our suggestions in the preamble to this part of the report for replacing percentage grants by some simpler arrangement are adopted, considerable reductions in staff should be possible here.

Welsh Board of Health (Cardiff) (£80,000).—A Board of Health was set up in Wales, to which some of the Ministry's functions in Wales were delegated. This has led to unnecessary duplication of staff, and we are informed that £40,000 could be saved if the work were transferred to the Ministry in London, and we suggest that this change should be adopted.

Housing.

The estimate of £11,400,000 for housing in 1922–23 is made up as follows :—

	£
Subsidy to private builders	2,500,000
Grants towards the deficit on local authorities' housing schemes	9,500,000
Discount on sale of army huts	20,000
Improvement of slum dwellings	130,000
	12,150,000
Less balance of sales of housing materials over purchases	750,000
	11,400,000

In regard to the private builders' subsidy, certificates have been issued in respect of 42,000 houses in England and Wales involving a total subsidy of £10,000,000, which is in course of payment. Of this sum it is estimated that £2,500,000 will remain to be paid in 1922–23, which will complete the scheme. The housing position under the schemes of local authorities was on Oct. 1st last :—

	Houses.
Restricted programme	176,000
Number completed	68,550
Number in course of erection	68,730
Number not yet started	38,720

The average cost of each house will probably work out at £1100 on which the taxpayer will have to find about £55 each per annum or some £10,000,000 for 60 years ahead. The Committee expresses much concern at this heavy liability and recommends the immediate sale of the houses, which would result in a net saving to the State of £21 10*s.* per house per annum. While the Minister of Health agrees with this policy, he points out that the Housing Acts do not enable him to make the policy of sale effective.

Public Health Services Proper.

Table III. shows the growth of expenditure under the several heads and the annual total.

TABLE III.

(The figures all require ,000 to be added.)

—	Tuberculosis.	Maternity and child welfare.	Venereal diseases.	Welfare of the blind.	Port sanitation.	Total.
	£	£	£	£	£	£
1913–14	117	—	—	—	—	117
1914–15	172	11	—	—	—	183
1915–16	245	41	—	—	—	286
1916–17	296	68	—	—	—	364
1917–18	361	122	84	—	—	567
1918–19	508	219	144	—	—	871
1919–20	548	512	224	23*	—	1307
1920–21	754	800	300	109	67	2030
1921–22†	1202‡	1042	404	100	67	2815
1922–23	1489‡	1162	424	85	50	3210

* Part year only. † Exclusive of non-recurrent expenditure totalling £220,000. ‡ In addition to capital grants of £15,000 in 1921–22 and £360,000 proposed for 1922–23.

With the exception of the grants for the blind, all these grants are on a percentage basis and the extremely rapid increase of expenditure leads the Committee to allude again to the dangers attaching to that system. The percentages are non-statutory

and should, the report states, be replaced by a system of block grants while the present financial stringency continues; previous expenditure is proposed as a basis for measuring the grant, unless some more satisfactory unit can be arrived at.

Reduction of the grants is proposed on the following modest scale:—

	Ministry's proposal.	Committee's recommendation.
	£	£
Tuberculosis (maintenance) ..	1,489,000	1,202,000
Tuberculosis (capital)	360,000	360,000
Maternity and child welfare ..	1,162,000	1,042,000
Venereal diseases	424,000	424,000
Welfare of the blind	85,000	85,000
Port sanitation	50,000	Nil
	3,570,000	3,113,000

"We have dealt with these items, except port sanitation," the report states, "in a manner which we believe, with falling prices and scrupulous economy, will not reduce the amount of undeniably valuable work being done." The grants to local authorities or other institutions are to be contingent upon no reduction in treatment and subject to review. The expenses of port sanitation to be borne by the locality, as was until recently the case.

(To be continued.)

SCHOOL HEALTH SUPERVISION IN CANADA:
A COMPARATIVE STUDY.

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THIS article presents nothing more or less than a first-hand knowledge of conditions of school health supervision in Canada, and deductions from information supplied to me concerning conditions elsewhere. It will be best at the outset to review very briefly the history of the school medical inspection movement throughout Great Britain and the Dominions. Starting with New Zealand and Australia, in the former this work had its beginning in a small way about 1904, and in the latter in 1905. South Africa as a whole became concretely interested only in 1921; the first mention of school medical inspection in Canada was in 1908, and although a great deal had been done in England, Wales, and Scotland previous to the Public Schools Administration Act of 1907–8, it was only then that a comprehensive plan for national school health supervision was made possible. It may be added here that no other nation, with the possible exception of Japan, has, up to the present, any reasonably efficient system of mandatory inspection. I have never found in the literature anything to warrant the belief that in Ireland this question has ever received more than a passing thought. Briefly, the whole movement is of recent birth, and varies widely in the method of procedure and control.

The Dominions Apart from Canada.

Australasia.—Australia is a country with remarkable climatic advantages, a minimum of congestion, broad legislation, and an almost total absence of foreign population; it might well be hoped that the percentage of children handicapped by physical defects found in older and more settled countries would here be relatively small, but the numbers found were quite comparable with those in other countries. At the same time the analysis of anthropometric measurements in these schools shows the physique to be better than in any other section of the British race, the elementary schools giving results as good as, and in small towns better than, English public schools. Each State of the Commonwealth carries on its own separate system of school health supervision. In New South Wales the division is an integral part of the department of public instruction; in Victoria the work is carried on by the department of education; in Western Australia an officer of the public health department is in charge of the work; in Tasmania, inspection was inaugurated in 1907, and is now wholly directed by the education department. No clear information is available from Queensland; it is to be hoped that the public health department will show renewed interest in this side of their work. A report of the work in South Australia did not come to hand in time for this article, but I feel reasonably safe in assuming that the programme for school hygiene is as far advanced in that State as in any other in the Commonwealth. In New Zealand school medical inspection is under the joint supervision of the health and educational authorities.

South Africa.—The work of the Transvaal education department[1] on school health supervision is about seven years old and is carried on under conditions hardly comparable with those of any other centre at present engaged in this field. Owing to the peculiar physical conditions of the country (intense illumination and lack of shade trees), vision defects are exceedingly common, and are quite one of the local problems. It is also worthy of note that there is a marked absence of tuberculosis and rickets even under conditions that would apparently favour their existence.

Canada.

The school health problem is met in Canada in a wide variety of ways, differing as the different provinces interpret their needs.

British Columbia.—School medical inspection is compulsory throughout the province, and is carried on in all urban municipalities by the local educational authorities. In the rural sections, however, the provincial department of health assume control of the work and arrange for the inspection by local physicians, who examine the children in their own district, once annually, and report back to the provincial board. No follow-up work had been attempted until recently, but I am told that considerable progress has been made in the appointment of rural public health nurses. Some 15 sections are now being served, and the demand for these workers is far in excess of the present supply. Many interesting figures are presented in the very excellent report of the provincial health department for 1920.

Alberta.—The regulations of the provincial department of education demand that all the cities and towns of the province furnish efficient school medical inspection, which is a charge on the municipality itself; in both Calgary and Edmonton, medical and dental inspection by physicians and dentists is carried on, and the follow-up work done by a group of school nurses, under the supervision of the local boards of education. The schools in the villages and rural districts are inspected by nurses employed by the department of public health, and the inspection is largely comparable to that carried on by the division of school hygiene in the adjoining province of Saskatchewan. Both provinces are facing serious health problems, owing to the great number of emigrants, recently arrived from Central Europe, who have settled together in large groups and are exceedingly difficult of absorption.

Saskatchewan.—In the cities the work is carried on by the local boards of education, and in rural districts by the staff of the school hygiene division of the department, which is composed of some 12 nurses. The members of this staff visit the schools in the districts allotted to them, and urge the improvement of sanitary conditions, the teaching of practical hygiene by the school staff, and the preventive aspect of the work generally. Little or no emphasis is placed on the examination of the individual child, the whole question being dealt with from the broad standpoints of education and sanitary supervision. I may say, however, that the qualifications necessary to obtain a position on the staff of the division of school hygiene are very definitely outlined, and their possession is insisted upon.

[1] THE LANCET, Jan. 7th, 1922, p. 45.

Manitoba.—The control of this work is assumed in the cities by the local boards of education, in the rural parts by the provincial department of health. The policy of the provincial board has been to link up all health activities in each centre, and to assist in the appointment of a community nurse, who exercises a certain amount of supervision over the children of school age, both at home and at school. An equable division of her time, so that each of the many phases of public health nursing receives its allotted share, is a difficult problem in districts as isolated as are many in which this policy is being carried out. However, we can well afford to wait and see just what will result. In Winnipeg a very capable and painstaking staff is carrying out work which compares favourably with that in any large centre in the older provinces.

Ontario.—Permissive legislation was enacted in 1909, allowing the school boards of individual municipalities to adopt school medical inspection, and in Toronto, the capital of the province, a very efficient system was established, which was taken over by the local health department in 1917. Some 50 centres throughout the province have adopted some form of school health supervision. In 1920 a definite attempt was made to extend the service to the rural sections, and the school hygiene division of the provincial department of education resulted, with the writer as director, and a staff of some seven physicians, 12 nurses, and a director of school nurses. A survey of the various counties is being made, and it is urged that sufficient of the rural school sections unite with one or more small adjoining urban sections to make up a unit of 30–35 classrooms, and the appointment of a full time school nurse is advised. The work carried out is entirely health propaganda, the curative side being left solely to the local practitioner. The children are examined; parents are notified of conditions which, in the opinion of the examiner, warrant treatment, and are urged to consult the family physician. The provincial Government pay an annual grant to all centres carrying on a reasonably efficient system of health supervision. Owing to the large size of the province—whose area is about three and a half times that of Great Britain, the greater portion being sparsely settled—it is very difficult to arrange any all-embracing provincial policy; much, however, has been done in the last year, and interest in the subject is very keen.

Quebec.—Outside the city of Montreal, which had some 12 years ago a rather attractive-looking plan of school medical inspection, which, however, has practically dealt only with the question of communicable diseases and their transmission, there has been little or no work done along the line of school health supervision. Owing to division of authority between public schools and separate schools, progress has been slower than might have been hoped.

New Brunswick.—The work is carried on by the Department of Public Health. There are six districts divided into sub-districts; for each of these the district board of health appoint a duly qualified physician to act as school medical officer, and he reports back to the district medical officer, who aids in the direction of the work. No follow-up work is done, but in its stead power is granted the district health officer, by the Public Health Act of 1918, to exclude all children found by the school medical inspector to be physically subnormal, who are not receiving treatment; following notification of the need for such treatment the parent or guardian may be compelled to supply the same under penalty of a breach of the Act. This experiment will be watched with interest.

Nova Scotia.—Except in the city of Halifax, which has maintained quite an efficient service, medical supervision of school children has been a development of only the last few years. In the last two or three years the work has extended to include all the larger urban municipalities in the province. In these, however, it is carried on practically altogether by school nurses, employed by the local school boards. Somewhat over a year ago, moreover, the provincial department of health, in coöperation with the department of education, began the extension of the work to the rural districts, public health nurses being now established in 14 of the 18 counties, although two of these 14 are only partly covered. During the last year these nurses made a partial physical examination of approximately 32,000 children; medical members of the staff of the health department followed up and supplemented this work of the nurses, and made a sanitary survey of the premises in the rural schools. Briefly, the programme is similar to that followed in some four or five of the other provinces—i.e., control of the work in the cities by the local school boards with medical supervision, and control in the rural sections by the health department, with public health nurses doing the actual work.

Prince Edward Island.—Only the recent activities of the Canadian Red Cross have awakened any interest in the question at all.

Great Britain.

Any attempt on my part to describe the mode of carrying on this work in Great Britain might rightly be classed as presumption. I will therefore confine myself to an expression of opinion as to its seeming effectiveness. In reviewing reports of the work done in the Mother Country, I am impressed with the apparent desire of all those associated with the work of school medical inspection to justify its existence by compiling large masses of figures, which outside the small group of individuals already locally interested tend merely to cast doubt in the minds of the layman as to whether this work is essentially educational or merely therapeutic. It would seem to me that school health supervision is not merely a question of telling how many children had their tonsils, adenoids, or teeth removed, or how many are victims of heart lesions, tuberculosis, flat-feet, defective vision, or malnutrition, but of how many of these conditions we are going to be able to prevent 20 years from now.

I have no intention of reviving the question of whether school medical inspection should be carried on by health or educational authorities, as this is largely a question of its being in charge of the department best fitted to carry it out in the centre where it is to be done. If school health supervision is to come up to the hopes of those really interested, there should be an increased interest in the question of health teaching, and an avoidance of any plan which has for its ideal merely the correction of physical defects in the community, especially when such correction is made so easy that the need for it, and a strict avoidance in future of all the things that have been factors in its existence to-day, are not sufficiently appreciated by the recipient of the service. Take an example—it is easier to persuade parents to have defects corrected if you are able to say that you will supply treatment free of charge, and to emphasise the fact that it will not even inconvenience them, and by so doing apparently assume all responsibility for the existence of the defect itself. On the other hand, if you can sufficiently interest the average parent in the need for treatment, and make him understand that he must assume some of the responsibility for the provision of such treatment, you have very definitely impressed him with the need for the avoidance of any condition likely to cause a repetition in others of a similar state of affairs. The lesson will remain a potent one in direct proportion to the time and money expended by the parent in seeking relief.

Conclusion.

Briefly, interest has been awakened in practically all parts of the Empire with regard to the importance of some form of school health supervision. There is a wide variety of methods of handling this work, and it seems reasonable to assume that for any serious attempt at the realisation of our goal we must take advantage of the knowledge of any group which can be a factor in its accomplishment. Some educational authorities fully realise their responsibility for turning out from the schools children fitted physically as well as mentally to function in the community. Some departments of health have assumed control because it gives them the most plausible passport into the home,

and having this, fail altogether to appreciate that the school is the logical place in which to inculcate the value of preventive medicine; other health organisations are honestly trying to give service, but even they are prone to let this important division drop down to a level below that of the "well baby" programme or V.D. propaganda work. Lastly, there are centres where the full importance of the phases of school health are appreciated in their true order, and protection and correction are placed below education in the scale of health activities.

PLAGUE, CHOLERA, AND TYPHUS IN TURKEY AND ADJOINING COUNTRIES.

A TWELVE MONTHS' RECORD.

BY F. G. CLEMOW, C.M.G., M.D.,
BRITISH DELEGATE, INTER-ALLIED SANITARY COMMISSIONS, CONSTANTINOPLE.

Constantinople, Nov. 22nd, 1921.

III.*—TYPHUS FEVER.

(*With some Notes on Relapsing Fever and Influenza.*)

IN the late autumn of 1920, after the collapse of General Vrangel's army, a veritable invasion of Constantinople by Russian refugees took place. It is probable that the already overcrowded population of this city was thus in a brief time increased by something between 150,000 and 200,000 persons. Of the difficulties met with in providing this large number of exiles with shelter, food, and the other primary necessities of life this is not the place to speak. Considerable numbers were gradually drafted off to camps outside the town, to other camps at Gallipoli and on the island of Lemnos, and to various European countries. The occurrence of outbreaks of typhus and relapsing fever among them was mentioned in my letter published in THE LANCET of Jan. 22nd, 1921. The epidemic of typhus among those under supervision in and around Constantinople was of no very great intensity. Down to Dec. 5th, 1920, 59 cases had been registered. In the weeks that followed the numbers of fresh cases varied between 13 and 33 (the highest figure being in the week ending Jan. 22nd). In the week ending Feb. 26th the figure had fallen to 6; and after March 26th no further cases were seen in this group of refugees. A few cases occurred during that winter among French troops in Constantinople whose duties brought them into contact with the Russians. (The outbreak of *relapsing fever* among these refugees was distinctly more severe. Down to Dec. 5th 367 cases had been recorded; in subsequent weeks the returns of new cases varied between 173 in the week ending Dec. 11th, 1920, and 15 in that ending Feb. 26th, 1921. In March there was a slight recrudescence, but after April 23rd no further cases were reported.)

Among the general population of Constantinople typhus has appeared in the weekly returns of infectious diseases for every week throughout last winter, spring, and summer, and in the present autumn. But the weekly figure has never been very high—only once running into two digits; most often it has varied between two and six, and there has been little difference between the winter and the summer records. In the month of October just ended the numbers have tended to rise again. (*Relapsing fever* also has been rarely absent from the weekly returns until quite recently; but here also the figures have been low—varying between 1 and 13.)

In the camps for Russian refugees at Gallipoli typhus appeared in late December and early January last. The returns from here, instead of being weekly, have been for irregular periods, varying between four and ten days, and consequently only totals can be quoted. In the first four months of this year 336 cases were registered—the figures steadily declining in March and April; in May only 2 cases were seen, in July also 2, and none have been recorded since. (*Relapsing fever* followed a similar course here, but the totals were higher; in the months January–April as many as 802 cases were reported; in May there were 6 cases, in June 1, and none since.) In the similar camps at Lemnos 249 cases of typhus were registered between Jan. 15th and the end of April, but the returns were incomplete; no case occurred after April. (The number of cases of *relapsing fever* here between Jan. 15th and the end of April was 571, and over 100 cases had been seen before Jan. 15th.)

No returns approaching completeness have been received here from other parts of the present or former Turkish Empire; and all that can be safely asserted is that small numbers of cases of typhus have occasionally been reported from places as widely apart as Ismidt, Smyrna, Adana, Damascus, Tripoli, Alexandretta, Beirût, and a few places in the neighbourhood of Beirût. There are no indications of a serious epidemic having occurred in any of these centres.

While much has been heard of the Russian refugees in Constantinople and elsewhere, the fact has to some extent been overlooked that large groups of refugees of other nationalities have been flocking to Turkey, Greece, and other countries as a result of recent political events in the Caucasus, Armenia, and Asia Minor. No epidemiological data have become available in regard to the very considerable numbers of Greeks and Turks and others who have fled to Constantinople and elsewhere in consequence of the varying fortunes of war between the Greek and Kemalist forces in Anatolia. There is, however, one group of exiles in respect of whom more or less definite figures are available showing the prevalence of typhus and some other diseases among them. These are refugees of Greek nationality who have fled from the Caucasus and been interned in camps near Salonika, or at other places in the interior of Greece. The number of such refugees has never been stated, but it has certainly run into several thousands. Two sets of figures for the cases of infectious disease among them have been received here, from different sources and for different week-periods, and these figures are often contradictory. But it is clear that both typhus and relapsing fever were prevailing in the camps as early as last December. In the week ending Feb. 21st there were 74 cases of typhus in the refugee camp-hospital outside Salonika, and 7 among refugees in the town. In subsequent weeks from 54 to 88 fresh cases were reported as occurring in this camp, and in that ending April 11th the figure rose to 150. From 1 to 7 cases were also occurring weekly in the town. In May the numbers declined, and from May 1st to 29th only 136 cases were registered; in June there were only 10; in July only 2, and none since. Other cases, small in number, were reported from various places up country—in refugee camps at Langada and at Lempet, in the towns or districts of Serres, Drama, Demir-Hissar, Cavalla, Kavakli, Ekaterini, Kirk-kilissé, Uzun-Kapou, and in the villages of Yarakalou, Yailadjik, Broussikia, and others.

(*Relapsing fever* was also very prevalent among these refugees, and where figures have been available, they have been as high as or higher than those of typhus. Thus in the week ending March 7th, 182 cases, and in that ending March 14th, 200 cases of the disease were registered in the Salonika camp. This epidemic seems to have followed much the same course as that of typhus and to have subsided about the same time. Mention may also be made here of a very sharp outbreak of "*grippe*," or *influenza*, which occurred in certain parts of Greece and in Crete last winter, and of which little or nothing has hitherto been heard. In the provinces of Achaia and Elis 87 cases of this disease, with 14 deaths, were recorded in the week ending March 12th, and at Aigoleia, near Aegion, there were 41 cases with 4 deaths in the same period. In the week ending March 19th, 70 cases and

* Part I., Plague, and Part II., Cholera, appeared in THE LANCET of Feb. 4th and 11th, respectively.

6 deaths occurred in the two first-named provinces. From Crete news was received of the occurrence of 8 cases at Canea and 5 cases with 1 death at Candia in the week ending Feb. 19th. Subsequent returns were as follows (c. = cases, d. = died):—

	Canea.	Rethymo.	Candia
Feb. 21st–March 5th	.. 48 c. 3 d.	.. 10 c. 1 d.	.. —
March 5th– .. 12th	.. 85 c. 2 d.	.. 0 c. —	.. 1 c.
.. 12th– .. 19th	.. 77 c. 4 d.	.. — —	.. —
.. 19th– .. 26th	.. 6 c. 2 d.	.. — —	.. —
.. 26th–April 2nd	.. 35 c. 2 d.	.. — —	.. —

April 3rd–16th: 2 cases in the island. None were subsequently reported. Mention may also be made of a few cases of influenza in Constantinople last winter, but nothing in the nature of an epidemic occurred here.)

The epidemic of typhus in and near Salonika was clearly due to an importation from the Caucasus by the refugees themselves. Of the prevalence of the disease in the latter region no very exact information has been received here. It is known, however, that in December last the disease was prevalent in Batoum and Tiflis, and it was reported to have been raging for a year in Astrakhan and to have been present "for several years" in Vladikavkaz. In January last typhus, without being actually epidemic, was said to be increasing in Tiflis, Batoum, and in Georgia generally, and this was ascribed to the overcrowding in the towns and the poverty and misery of the people, which prevented them from buying linen or clothing, soap for washing purposes, or fuel for heating baths. The disease was also said to have been spread by the movements of persons coming from Soviet Russia, where typhus was said to be prevailing to a degree that it was difficult to estimate. Your columns have, however, borne recent witness (THE LANCET, Nov. 5th, p. 970) to the enormous prevalence of this disease in that unhappy country during the past three years.

Finally, it may be mentioned that the bill of health of a steamer arriving here from Galatz, which it had left on May 17th last, bore the annotation "Typhus fever epidemic"; but no detailed information has been forthcoming as to the prevalence of the disease in Roumania.

THE MEDICAL EXAMINATION OF EMPLOYEES:

A COMMON FORM OF REPORT.

THE Medical Committee of the Industrial Welfare Society has received requests for a suitable form to be used by medical officers when making their examinations on behalf of firms. The form below is sent to us for publication by Dr. D. A. Coles, the chairman of the Committee, because it is based on his own experience in industrial medical work. It is not published as a model, so much as a document which invites comment, suggestion, and modification. There are something like 250,000 factories in the country and it is possible that no form will exactly fit the needs of all of these. If firms with experience in the matter will send to Dr. Coles at the Industrial Welfare Society (51, Palace-street, Westminster, S.W. 1) any documents which they employ, or suggestions of what they would like to see incorporated, they will be most valuable in preparing a form or forms which can be used, in lawyers' phraseology, as "common."

MEDICAL EXAMINATION OF EMPLOYEES.

The general consensus of opinion (lay and medical) endorses the sound axiom that, whenever possible, each employee should be medically examined before being accepted for any kind of work. In all large works this is essential—in small ones it is extremely advisable, in the interests of the employee, the employer, and the community in general.

This axiom being accepted, it follows that a form to be filled in should be provided. What the exact nature of these forms should be can only be arrived at after mature consideration, founded on experience and corrected by revision.

Forms for Medical Examination to be Filled Up by the Doctor Examining the Case.

The following rules should be adopted in the preparation of these forms.

(A) The examination must be strictly confidential and must not be filed with the general dossier or record of the worker. The forms should, therefore, be headed: *Private and Confidential.*

(B) The examination should be made by a doctor specially qualified for this particular work—e.g., the senior surgeon of a large hospital may be as unfitted to decide between functional and organic disease of the heart, as the examining doctor would be to perform a complicated abdominal operation. The one is a specialist and aims at knowing everything about something, the other should know something about everything.

(C) The forms should be uniform: (*a*) For purpose of comparison, (*b*) for facility in recording statistics, (*c*) for saving of time, (*d*) for economy in their production.

(D) They should be ample. What is not relevant may always be neglected, but what is omitted in the form may be forgotten. It ensures greater accuracy and prevents the omission of important details.

(E) They should be printed: (*a*) On one side only; (*b*) on good paper to avoid destruction; (*c*) in small clear type, providing ample room for answers; (*d*) on thin paper for reduplication. Two copies would always be required—frequently more.

(F) Different forms should be printed on different coloured paper.

(G) Different forms should be provided for different circumstances:—

(*a*) *New Employees.*—(1) Men, (2) women (these two may appear on the same form though not advisable), (3) children.

(*b*) *Accidents.*—(1) Original examination, (2) continuation—i.e., subsequent examinations.

N.B.—It is important that a copy of each report should be filed for ready reference by the doctor. At each subsequent examination he should have all the worker's previous medical reports before him.

SPECIMEN HEALTH REPORT FOR COMMENT, SUGGESTION, AND DISCUSSION.

Private and Confidential.—This is all-important and therefore comes first.

Name of Firm, Corporation, Society, &c.

PART I.

Name.—Surname followed by other names. The address can be inserted if necessary. Generally it is unnecessary and therefore should not cumber the report. It will always appear in his other papers.

Wages No.—Sometimes called "Works No." "Stage No.," &c.

C.P. No.—i.e., Co-partnership.

1. *Suitability for this Occupation.*—I have placed this immediately after the worker's name for convenience of the Manager. It is often the only answer he looks at. It may also be used as suitability for co-partnership, old-age pension, &c. It may be answered "Yes," "No," "Postponed," "For light work only," &c.

2. *Age last Birthday.*—A birth certificate should be procured if possible. In my experience at a military hospital, also at the re-survey board of the Ministry of Pensions, as the pensions representative on the dispersal board at a dispersal hospital in London and as medical officer to the Ministry of Munitions, I found there were two ages, the official age and the real age. In industry it is equally important; e.g., I said to a man, "Your birth certificate shows you to be 31, you gave your age last year as 29." "Well, Sir," said the man, "the job was only open to men under 30."

3. *Height.*

4. *Weight.*

5. *Occupation.*

6. *Duration of Service with this Firm* (present and previous).—If previous, mention why he left the company—e.g., slackness of work, ill-health, &c.

7. *Time Lost Through Illness During the Past Five Years.*

8. *Date of Previous Medical Reports* (health, accident, special, &c.).—I attach much importance to this question.

PART II.

9. *Family History.*

10. *Previous Maladies.*

11. *Military History.*
Date of Joining. Category. Gunshot wounds, illness, accident, &c., during military service.
Date of demobilisation. Category. Pension.

12. *Sight.*

13. *Hearing.*

14. *Teeth.*

15. *Rupture.*

16. *General Health* (heart, lungs, &c.).

17. *General Remarks.*

N.B.—There are numerous other questions which may appear on a medical report, some of which are advisable—e.g., urine examination. (There are obvious difficulties in making this test universal.) Others are inadvisable—e.g., "Is the worker moderate in the use of alcohol?" Not once in ten thousand times does a doctor answer this in the negative. The question is nearly always put to the examinee on a life assurance form. It is always answered in the affirmative even by the habitual drunkard. This is only suggested as a skeleton form to encourage comment. The questions are divided into two parts, the first eight, excepting under the head of suitability, are those of a general, the remainder of a medical character, and of a specially confidential nature. In all cases where the answers to the questions are only on the worker's authority the word "states" should be inserted.

IRELAND.

(FROM OUR OWN CORRESPONDENT.)

THE MEDICAL PROFESSION IN THE FREE STATE.

AT a recent special general meeting of the Irish Medical Association, Dr. M. F. Cox in the chair, the members discussed the general position of the medical profession in the Free State. The discussion was briefly opened by Dr. E. Magennis, President of the Association, when Mr. J. S. McArdle proposed—

"That this meeting requests the Council of the Irish Medical Association to appoint a committee to consider the position of the medical profession, and that they approach the Provisional Government and the Government of the Irish Free State to give them all the assistance in their power; that the committee have power to coöpt representatives of all licensing bodies, medical societies, and the Irish office of the British Medical Association."

He held that they should take the earliest opportunity possible of placing their profession in its proper position in relation to the rest of the community. If they only maintained a judicious attitude towards the things that were passing now they might so establish their profession in Ireland that it would probably be the highest in the whole professional community. The time was ripe, and it was his considered opinion, not that they should foist any sort of project on the public or on the Provisional Government, but that they should give due consideration to what would come to pass in the near future. The committee should meet as frequently as necessary and report to the Association.

Dr. T. Hennessy, secretary of the Irish Medical Committee, said that at the last meeting of delegates of the whole profession this question was not before them, and it was understood that in all future matters they should be represented by the Irish Medical Committee, which was entirely representative of the whole profession in Ireland. If they adopted Mr. McArdle's resolution they were snapping their fingers at the whole profession in Ireland. Compared with the Irish Medical Committee, the Irish Medical Association was not fully representative of the profession in Ireland. He urged the necessity of having an authoritative resolution on behalf of the whole profession in Ireland, and not a resolution of any association that was not so representative.

Dr. T. Higgins, of Stradbally, said that he was a member of the Irish Medical Committee himself, and he bore testimony to its value to the profession. He did not believe that any conflict would arise between the Association and the Committee. He wished the Committee to continue, and his allegiance to the Association would not make him in the least forget what the men, especially in the provinces, owed to Dr. Hennessy and the Committee.

Mr. McArdle said that he was against any antagonism. Any members who wished to be part and parcel of the effort would be most heartily welcome. He never for a moment thought of placing the Association in antagonism with any other. He only wished that the effort should be started in time.

Dr. R. J. Rowlette said that he thought they were scarcely at the present moment in a position to take the course proposed. He was not sure whether it was wise for them to take executive action. They were not meeting in a representative capacity, but he thought it would be wise for them to give advice to existing organisations. He proposed as an amendment:—

"That this meeting suggests to the Council of the Irish Medical Association to take steps to form a united committee, representative of several medical organisations in Ireland, to consider and take steps to protect the interests of the medical profession in the Free State."

This amendment was seconded by Sir William Wheeler, and being accepted by Mr. McArdle, was adopted unanimously.

An Increase in the Subscription to I.M.A.

It has been agreed unanimously that the annual subscription to the Irish Medical Association should be raised from 1 to 2 guineas.

PARIS.

(FROM OUR OWN CORRESPONDENT.)

Appointment of New Minister of Health.

Mr. Paul Strauss, Member of the Senate and Member of the Academy of Medicine, has been appointed Minister of Health to succeed Mr. Leredu. The new minister has already shown his interest in lunacy administration by the suggestion, which has been accepted by the President of the Republic, that in the future the selection of candidates for the post of physician to any lunatic asylum in France will be made after a competitive examination.

Federation of Medical Associations and Syndicates.

The majority of the members of medical associations and syndicates in Paris having come to the conclusion that the welfare of the medical profession was not well protected owing to lack of coöperation, have decided to group them in a federation entitled "La Fédération corporative des médecins de la région Parisienne." This federation was created by a unanimous vote of the delegates of the various medical associations, societies, and syndicates, who recently held a general meeting at the Faculté de Médecine. The delegates were members of the following associations:—

Association des professeurs et professeurs agrégés de la Faculté; Association corporative des médecins, chirurgiens, accoucheurs des hôpitaux de Paris; Société médicale d'arrondissement; Syndicat des médecins de la Seine; Société centrale de l'association générale des médecins de France; Société de médecine de Paris; Syndicat médical de Paris; Société des médecins inspecteurs des écoles; Société des médecins du bureau de bienfaissance; Association amicale de la banlieue Ouest et Nord; Association syndicale de la banlieue Est et Sud; Association corporative des internes en médecine; Association professionelle des externes en medecine; Association corporative des étudiants en médecine; Association générale des étudiants (section de médecine).

It is interesting to note that such a federation groups together consulting physicians and surgeons, general practitioners, and medical students.

Antityphoid Vaccination.

At a recent meeting of the Société de Médecine Publique et de Génie Sanitaire, Dr. L. Vaillant reported the results of antityphoid vaccination in the course of an epidemic of typhoid fever occurring in six villages in the devastated region of the department of the Pas-de-Calais last autumn. Fifty-nine cases were recorded in all, and when vaccination was resorted to, 29 cases had already occurred. Two methods of vaccination were made use of. Out of a population of approximately 2000, 173 were injected hypodermically with T.A.B. vaccine No. 2 of the Pasteur Institute; 1236 persons were given Besredka's entero-vaccine by the mouth; and 600 to 650 inhabitants were not vaccinated. Amongst the 1236 persons who took Besredka's entero-vaccine, 5 developed typhoid fever; amongst the 173 who were injected with the T.A.B. vaccine, 4 developed typhoid; amongst the 600 to 650 unvaccinated persons, 21

contracted the disease. Dr. Vaillant regarded the results as very creditable to Besredka's vaccine. He concluded that if it is not yet possible to form an opinion as to the duration of the immunity conferred by this vaccine, it is certainly effective, and it has the great advantage that its method of administration is much more readily accepted by the people than are injections of vaccines; more especially when the candidate is informed that inoculation has to be repeated if immunity is to be preserved. At the same meeting it was reported that a special department in four of the Paris hospitals had been organised, where inoculation against typhoid fever is performed free of charge. One of the members pointed out that the public is not yet altogether convinced of the innocuousness of antityphoid vaccination, owing to the febrile symptoms which some ex-Service men remember experiencing when inoculated during the war. The members present were of opinion that post-vaccination febrile reaction can be prevented by recommending a light diet and forbidding fatigue on the day of inoculation, and it was suggested that a printed notice should be handed to every inoculated person, emphasising the need of observing certain precautions so as to avoid unpleasant after-effects. .

Typhoid Morbidity and Vaccination.

At a recent meeting of the Académie de Médecine, Prof. E. C. Achard said that in his wards at the Hôpital Beaujon during last year he treated 4 men and 14 women suffering from typhoid or paratyphoid fevers. The male patients were all under 20 years of age, but of the women three only were under that age. Adding these cases to previous statistics collected since the war, the totals come to 12 cases amongst male patients, six being 20 years of age, and 31 amongst female patients, with also six under 20 years of age. Patients who were prophylactically vaccinated formed only a very small proportion of the total. None of these died; they all had a mild form of the disease. Dr. Achard pointed out the probability that prophylactic vaccination performed on soldiers during the war still protects the male sex; he remarked that the cases recorded amongst men were all in young men who had not yet joined the colours, and finally concluded that the usefulness of prophylactic vaccination amongst the civilian population would seem obvious.

Bismuth and Prophylaxis of Syphilis.

At a recent meeting of the Académie des Sciences, MM. R. Sazerac and P. Levaditi gave facts in favour of the opinion that tartro-bismuthate of sodium and potassium prevents the development of syphilis when applied in the form of an ointment within one to four hours after contamination. Such are the findings in cases of animals exposed to contamination; MM. Sazerac and Levaditi also think that their experiments tend to prove that tartro-bismuthate acts prophylactically when injected intramuscularly in small doses; they also mentioned that this salt of bismuth, as well as bismuth lactate, administered by the mouth seems to retard the breaking out of specific lesions.

Mme. Curie's Election.

Mme. Curie has been elected an Associé Libre of the Académie de Médecine by 62 votes to 16. Mme. Curie, not being a doctor of medicine, is unqualified for nomination as full member of the Academy.

Donation to the Faculty of Medicine.

At the last meeting of the council of the Faculté de Médecine of Paris, Prof. H. Roger, the Dean, announced that Madame Dieulafoy has made a donation to the Faculty in memory of her husband, the late Prof. G. Dieulafoy. The grant will bring in an annual income of Fr.26,000, which will be distributed in the following manner:—The medical clinic of the Hôpital de l'Hôtel-Dieu and that of the Hôpital Cochin will each receive Fr.8000 annually; an annual sum of Fr.5000 will be allocated to the corresponding service at the Hôpital Saint-Antoine; and Fr.5000 will be given to the laboratories attached to the professorship of medicine. During a special session the council proceeded to the election of Mr. H. Claude, professeur agrégé and physician to the Hôpital Saint-Antoine, to the vacant professorship in Psychiatry.

Open-Air Schools and Statistics.

The *École de Puériculture* has published the following findings resulting from an open-air school which was installed on a common in Paris during four months of last spring and summer. (1) Competent teachers were of opinion that the progress obtained during four months, the children studying two hours a day, was just as noticeable as that which might have been obtained in an ordinary school in the course of a whole school year. (2) Children gained two pounds in weight on an average; the chest measurement and respiratory capacity became noticeably larger.

The Services.

ROYAL NAVAL MEDICAL SERVICE.

Surgn.-Comdr. F. F. Mahon is placed on the Retd. List with the rank of Surgn.-Capt.

Surgn.-Lt. (D.) A. McHaffie to be Surgn. Lt.-Comdr. (D.).

ROYAL ARMY MEDICAL CORPS.

Maj.-Gen. J. J. Russell, late R.A.M.C., retires on ret. pay.

Lt.-Col. J. C. Kennedy to be temp. Col. whilst spec. employed.

Surg.-Maj. R. Vella (Royal Malta Artillery) is placed on half pay.

Capt. J. E. Hepper is restored to the establishment.

Lt. (temp. Capt.) J. C. Coutts to be Capt.

Temp. Capt. B. W. Mudd relinquishes his commn. and retains the rank of Capt.

ARMY DENTAL CORPS.

Lt. (temp. Capt.) G. A. G. Jones to be Capt.

TERRITORIAL ARMY.

Maj. D. Mackie (late R.A.M.C., Spec. Res.) to be Capt. and to relinquish the rank of Maj.

Capts. P. D. Warburton (Res. of Off.) and A. Davidson (late R.A.M.C.) to be Capts.

Capt. F. M. Halley is secd.

The undermentioned officers, having attained the age limit, are retired and retain their rank except where otherwise stated and are permitted to wear the prescribed uniform: Lt.-Cols. T. H. Openshaw and T. F. Dewar (granted the rank of Cols.), and J. Mill and C. E. Douglas; Majs. J. B. Stevens, H. Kelly, J. W. Cook, C. Vise, and A. C. Turner.

The following officers retire under the age limit and retain their rank: Capts. W. T. Ritchie (granted the rank of Maj.), G. B. Pearson, J. H. Churchill, W. H. H. Bennett, B. G. Ewing, and W. H. Buckley.

TERRITORIAL ARMY RESERVE.

Capt. R. W. Simpson relinquishes his commn. and retains the rank of Capt.

INDIA AND THE INDIAN MEDICAL SERVICE.

The services of Maj. E. C. Hodgson have been placed at the disposal of the Government of India in the Sanitary Department; Maj. H. S. Hutchison, civil surgeon, Nisik, has been granted a year's leave; and Lt.-Col. E. R. Rost has been granted an extension of leave on medical certificate. Lt.-Col. E. C. Hepper, civil surgeon, and Maj. G. A. Jolly, civil surgeon, on return from military duty have been posted to Jhansi and Chabjahanpur respectively. Lt.-Col. T. J. Carey Evans has been appointed Surgeon to the Viceroy. Lt.-Col. A. A. Gibbs, on return from furlough, officiates as Assistant Director-General, vice Lt.-Col. H. Ross on leave. Maj. T. Marison joins the Public Health Department, United Provinces; and Col. W. G. Pridmore has been appointed Assistant Director of Medical Services, Madras District, vice Lt.-Col. H. J. Bamfield, relieved. Capt. G. I. Benjamin has been appointed Superintendent, Special Prison, Aden, in addition to his other duties. On return from leave Lt.-Col. C. H. Bensley has been re-posted as Inspector-General of Prisons, Central Provinces. Maj. F. W. Cragg, of the Bacteriological Department, has been granted one year's combined leave, and Capt. M. L. T. Alwar Singh has been appointed health officer of the Multan Municipality. Lt.-Col. E. F. G. Tucker has been appointed Professor of Medicine and Therapeutics. Lt.-Col. T. S. Novis, Professor of Surgery, and Capt. B. P. Karani, Professor of Biology at the Grant Medical College. Maj. H. H. Thorburn has been posted as Civil Surgeon, Quetta.

Correspondence.

"Audi alteram partem."

PARLIAMENTARY REPRESENTATION OF MEDICINE.

To the Editor of THE LANCET.

SIR,—Would vocational representation in Parliament create a more beneficial, a more effective political machine for the country than is provided by the existing means? Writing after three years' experience of Parliamentary work, my answer is frankly but emphatically in the negative. The qualities and attributes of the vocational expert or representative, excellent though they may be in their proper environment, serve only as a clog and a drawback to him in the political arena. He voices a sectional view, a view which, measured by considerations of the broad needs of the community, may be described quite inoffensively as a narrow view, and when the issue lies between communal and sectional needs the vocational representative ceases to be a statesman and becomes an advocate—a mere special, and somewhat selfish, pleader. In the present House of Commons this type of political representative is exposed to a very considerable handicap; a handicap to which his constituency is, in reflex, exposed. This is as it should be, for the Legislature is not the place for the airing of narrow, possibly transient expert opinions. It concerns, and should concern, itself with broad issues and political principles, and with both eyes wide open as to national, as against sectional needs, leaving to departments and executives for the time being such questions of administration as can only be disposed of by balancing and weighing the values of expert opinions. Departure from this general rule, and yielding to the clamour of sections, have resulted in the passing of much legislation in recent years which has been useless, ineffective, and even harmful.

So much in condemnation of the theory of vocational representation in general, but it also has defects in the particular, when one comes to consider the grouping into a "party" for the purpose of functioning as an effective political force. Nothing will illustrate this better than the proceedings of the existing Medical Committee of the House of Commons—viz., the impossibility of securing unanimity of view even upon questions of exclusively professional import. Take the Dentists Act. In the Medical Committee there was an acute cleavage of opinion on this measure, and the facility with which it passed into law was due in the main to the complaisance of the House of Commons in face of the driving force of the present Minister of Health, supplemented by the efforts of Mr. Acland, Mr. Briant, and a few members of the Medical Committee, notably Captain W. E. Elliot. If the conflict of view which prevailed amongst members of the committee had been deployed before the House it is doubtful if the Dentists Act would now be, for good or for evil, upon the Statute Book. Common ground, general agreement is necessary for the formation of a solid party, and I have little hope of this being secured in a group composed solely of doctors.

A doctor in Parliament—i.e., *as* a doctor—can only hope to obtain a second-rate place in the political world, and the measure of such influence as he may acquire as an individual will be increased or lessened by the width or narrowness of his outlook. The fixed, hidebound, stereotyped view of the grey-haired expert will never carry himself or anybody else very far; but given youth, vision, and a capacity for hard work there is no reason why a doctor should not become a force in politics, even a "pillar of the State." His success, however, will be as a politician and not as a doctor. The existing Medical Committee has, in my opinion, exercised a very trifling influence upon the proceedings or decisions of the House, and it has failed to present a determined united front on several occasions when such might have been effectively and beneficially shown. Take, for example, the failure to compel the Board of Education to surrender the medical inspection of school-children to the Ministry of Health, the failure to support the Miscellaneous Provisions (Health) Bill, the Criminal Law Amendment Bill, and various others which I need not particularise. Medicine and politics do not mix well, and he who drinks deep of one loses appreciation of the other; and it is well that it is so. The profession of medicine carries with it its own defects, defects which to me serve only to stimulate affection for it, but I should tremble for the fate of my country if ever I saw a Ministry composed exclusively of doctors, lawyers, editors, or miners.

I am, Sir, yours faithfully,

A. C. FARQUHARSON.

House of Commons, Feb. 13th, 1922.

THE TREATMENT OF GASTRIC ULCER.

To the Editor of THE LANCET.

SIR,—As regards the treatment of ulcer of the stomach which would appear to be regarded still by the bulk of the profession as a separate entity quite apart from the rest of the gastro-intestinal tract, it seems to me logical and scientific that in considering the mode of surgical treatment we should first render ourselves familiar with the factors which determine the development of the ulcer. If we know them we shall be able to consider how far those causes can be removed by operation or if they are not removed whether they will be still in action or in abeyance because of the operative procedure adopted. This would appear to be the proper course to pursue. My own explanation of the causation of ulcer of the stomach is perfectly clear and can be demonstrated by clinical, radiographic, operative, and pathological evidence. In any case it is a statement of facts and it is open to anyone to disprove the facts I have put forward. However, if my views are not accepted, I feel I cannot do better than take those expressed most recently.

At the adjourned debate on the Treatment of Gastric Ulcer at the Royal Society of Medicine, Sir William Hale-White made the introductory remarks, being, no doubt, asked to open the debate on the assumption that he was particularly well fitted by experience and by his knowledge of medical literature to place before the Society in a clear logical manner the views of the medical profession on this subject. Feeling that the accepted knowledge of the factors which determine the condition is of vital importance, since they are permanent, while the forms of diagnosis and treatment vary from time to time, I find the following:—

"Our second difficulty is concerned with causation. We knew how to treat a few diseases—for example, malaria and syphilis—before the cause was discovered, *but generally treatment is imperfect until the cause is apparent.* Clinical observations and experimental work indicate that *a gastric ulcer is due to the local effect on the stomach of bacteria or toxins produced in another part of the body*, and that when the gastric patch damaged by them has been formed the excavation of the ulcer is promoted and its healing retarded by the acidity of the gastric juice. It is probable that the incriminating factor is not always the same and that there are different varieties of ulcer due to different causes. Whether ulcers in human beings are formed by endogenous gastrotoxins is not known, but judging by Bolton's experiments it is possible. Still we do not yet know the cause of a gastric ulcer with anything like the certainty with which we are able to say that a diphtherial ulcer is caused by the diphtheria bacillus or a syphilitic ulcer by the *Spirochæta pallida*. Putting aside traumatic ulcers and those due to irritant poisons, *only twice have I been able to say, even after death, that I really knew the cause of an ulcer;* once there were definite tubercles on its peritoneal covering and I saw the beautiful specimen exhibited here by Dr. McNee showing syphilitic spirochætes in the wall of an ulcer. *Nevertheless there is sufficient evidence for the view above mentioned for it to be strongly advisable, in every case of gastric ulcer, to remove any distant possible source of infection, be it in the teeth,*

appendix, or gall-bladder, disease of any of these being commonly associated with gastric ulcer. More rarely such a source may be elsewhere—for example, tonsils or nose."

I quote from the *British Medical Journal* of Feb. 11th and have put several sentences in italics as I consider them important.

The above remarks comprise apparently all that is known of any importance about the causation of gastric ulcer, and if the statement is correct that a gastric ulcer is due to the local effects on the stomach of bacteria produced in another part of the body, any procedure that merely involves operative interference with the stomach and does not remove the cause of the ulcer leaves that cause still in action. Therefore, as in only a very small proportion of cases is the so-called cause removed, the treatment adopted is neither scientific nor surgical. If this description of the causation of gastric ulcer be true, the obvious treatment should be the removal of the source of infection of the gall-bladder, appendix or tooth and the excision of the ulcer. There can clearly be no indication to interfere with the mechanics of the stomach, unless of course there is any pyloric obstruction. Again, I would ask why are infections of the teeth, appendix, or gall-bladder *commonly associated* with gastric ulcer? What are the causes which determine infection of the appendix, gall-bladder and teeth? The reason is obviously because they play a part in the sequence of which gastric ulcer is merely one result. Do gastric or duodenal ulcers ever occur in a gastro-intestinal canal which is otherwise normal? Perhaps some experienced pathologist will answer this question. Personally, I know they do not.

Turning now to the remarks of that master of surgical technique, Sir Berkeley Moynihan, who said that "with almost everything which had been advanced by Sir W. Hale-White he found himself in complete agreement"—his experience has led him to come "to the conclusion that the only operation which was worth while in the great majority of cases was partial gastrectomy." The position, then, is this—namely, that the medical profession, as represented by those whose opinion and judgment are regarded as most valuable and reliable, consider that while the cause of gastric ulcer "is due to the local effect on the stomach of bacteria or toxins in another part of the body," the scientific treatment of this condition is to remove as much of the stomach as the skill of the surgeon will permit him to do with safety. As, however, the bacteria or toxins are still in action, the logical conclusion which this treatment suggests is that if the entire stomach is removed, gastric ulcer can no longer be produced by them. Are we sure that in concentrating on what I believe to be an end-result in a sequence, surgeons are not neglecting completely the treatment of the factors which produce the ulcer and which are still operative?

I am, Sir, yours faithfully,

Feb. 11th, 1922. W. ARBUTHNOT LANE.

CONTROL OF VENEREAL DISEASE: THE CAMPAIGN IN GERMANY.

To the Editor of THE LANCET.

SIR,—The very valuable report on the anti-venereal campaign in Germany, appearing in your issue of Feb. 11th, referring to the nineteenth annual meeting of the Deutsche Gesellschaft zur Bekämpfung der Geschlechtskrankheiten, concludes with the following sentence: "It will be seen from this summary of the proceedings of the D.G.B.G. that its guiding principles are not identical with those of the National Council for Combating Venereal Diseases." These principles, however, appear to be identical with those of the Society for the Prevention of Venereal Disease in regard to immediate self-disinfection, Prof. Blaschko insisting on the very points so often raised by the Society for the Prevention of Venereal Disease, "as to the necessity of deciding on a simple, cheap, and efficient disinfectant, and that personal prophylaxis is eminently a private matter." The D.G.B.G. also complains that "the chief concern of legislation in Germany has been to put as many hindrances in the way as possible," and clearly shares with the Society for the Prevention of Venereal Disease a similar difficulty in obtaining Government support.

Prof. Blaschko's remarks as regards ablution centres are very interesting, and he advocates their use in large towns, because "in addition to the immediate benefit obtained by ablution there is the teaching of personal prophylaxis, so that a man who has been twice or thrice to such a centre learns how to disinfect himself."

This report of the leading German authorities is particularly interesting, in view of the suggestion widely circulated by Lord Gorell and the National Council for Combating Venereal Diseases, that the German delegates at the Red Cross Conference at Copenhagen last May were opposed to immediate self-disinfection; whereas it is quite clear that on the contrary authoritative medical opinion in Germany sees almost eye to eye with the Society for the Prevention of Venereal Disease, and has to contend with similar "objections raised in certain quarters by women," although in this country, where women are more progressive, and take a larger share in politics and social movements than in Germany, an influential section of women support the policy of immediate self-disinfection for men.

I am, Sir, yours faithfully,

H. WANSEY BAYLY,

Harley-street, W., Feb. 11th, 1922. Hon. Sec., S.P.V.D.

AID TO MEN OF LETTERS AND SCIENCE IN RUSSIA.

To the Editor of THE LANCET.

SIR,—At the beginning of last year a British Committee was formed with the object of sending books and other publications to men of letters and science remaining in Russia. The Committee was assured that any such works, if addressed to the House of Science, or the House of Literature and Art, in Petrograd, would reach their destination and would be much appreciated by literary and scientific men who met there and were cut off from the intellectual life of the rest of the world.

An appeal was, therefore, made for funds to purchase works of a non-political type for dispatch to Petrograd, and Prof. Oldenburg, Permanent Secretary of the Academy of Sciences, furnished a list of books and other publications much needed by Russian savants. The books particularly desired were those which included accounts of current problems and developments of pure and applied science. As the result of this appeal, the sum of £448 17*s.* 5*d.* was subscribed, and several scientific societies, including the Royal Society, entrusted the Committee with their publications for transmission to Petrograd. The Russian Trade Delegation undertook the dispatch of the books, and 10 cases have been forwarded.

Prof. Oldenburg, writing on Dec. 21st last, expresses the deepest gratitude of scientific workers in Petrograd for this stimulating intellectual aid, and says that they have been placed in a special reading-room at the House of Savants, where they are consulted by a large number of students throughout the day and have been the means of reviving scientific interests and work. He sends the most cordial thanks of men of science in the city to all who have contributed towards the stimulus to scientific investigation which the new publications have given them.

Having thus established contact with scientific men in Russia and enlightened them as to the progress of research from which they have been separated by political circumstances beyond their control, the Committee is of the opinion that its task has been accomplished. Of the fund remaining in its hands, the sum of £50 has been expended upon books desired by the University of Latvia, and a small balance will be handed over to the Universities Committee of the Imperial War Relief Fund.

The Committee gratefully acknowledges the generosity of the response to its appeal and believes that the intellectual relief thus afforded will do much

to strengthen Russian scientific life. A statement of accounts, audited by Messrs. W. A. Browne and Co., chartered accountants, will be sent to anyone who desires a copy.—We are, Sir, yours faithfully,

R. A. GREGORY, Chairman,
C. HAGBERG WRIGHT,
Hon. Sec. and Treasurer, The British Committee for Aiding Men of Letters and Science in Russia.

British Science Guild, 6, John-street, W.C.,
Feb. 11th, 1922.

QUEEN ALEXANDRA SANATORIUM AND THE ALPINE TREATMENT OF TUBERCULOSIS.

To the Editor of THE LANCET.

SIR,—Sir Martin Conway in his letter in your issue of Feb. 11th under the title Alpine Treatment of Tuberculosis is mistaken in thinking that funds from the sale of the Queen Alexandra Sanatorium "are in the hands of its Committee." The sale in question has not yet been carried out, nor has the Council yet considered the question of the application of the proceeds. The sanatorium was closed owing to the difficulty of conveying civilian invalids through France to Switzerland, and of securing proper food and heating. After the war it was not reopened. This was by no means from any loss of confidence in the curative virtues of the Davos climate or in the value of our sanatorial treatment, but solely because the general rise in salaries and wages and in the cost of living, coupled with the adverse Swiss exchange, would have necessitated charging a much higher fee than could have been paid by the patients of small means for whose benefit subscriptions were originally raised and the sanatorium was built and equipped.

We are, Sir, yours faithfully,

D. VESEY, } Joint Hon. Secs.,
Feb. 13th, 1922. WM. EWART, M.D., } Q.A.S.

AN INCOME-TAX ANOMALY.

To the Editor of THE LANCET.

SIR,—During the war, and especially in the early years, many medical men were employed by the British Red Cross Society and were given honorary rank in the R.A.M.C. by the War Office. These individuals were compelled to pay income tax at the civilian rate. Many of them, myself among them, protested but were overruled. I have now learnt accidentally that the Government relented on this point and decided that the income tax should be charged at the military rate. But the information was not brought to the notice of those who were most concerned.

I am further informed that any application from me cannot be entertained owing to lapse of time. (I was in the employment of the B.R.C.S. from 1914 to March, 1917.) But if I am in a position to have a question raised in the House of Commons, something might be done. I ask you to publish this letter in the hope that it will catch the eye of anyone whose service with the B.R.C.S. began in 1914.—I am, Sir, yours faithfully,

CHARLES MILLER.

Talbot-square, Hyde Park, Feb. 12th, 1922.

SURGICAL MEASURES IN HYPOPITUITARISM.

To the Editor of THE LANCET.

SIR,—My attention has been drawn to what appears to be a discrepancy between a statement in the review of the Dictionary of Practical Medicine published in THE LANCET of Dec. 10th, 1921, and what I actually wrote in my article on the Affections of the Pituitary in this Dictionary. The passage to which I refer in THE LANCET is as follows: "It is curious to note that although operation is advised in some cases of hyperpituitarism, no such form of treatment is even suggested where there is a deficiency in the function of this gland." However, in my article I stated, "Surgical measures may be required in cases of hypopituitarism due to a tumour that is causing local disturbance by pressure."—I am, Sir, yours faithfully,

Weymouth-street, W., Feb. 7th, 1922. G. E. BEAUMONT.

*** We much regret the error.—ED. L.

Medical News.

UNIVERSITY OF OXFORD: RADCLIFFE PRIZE, 1923.—This prize, which is of the value of £50, will be awarded by the Master and Fellows of University College upon the report of the examiners, provided a sufficiently deserving memoir be submitted for adjudication, for a memoir, or papers, embodying research in any branch of medical science comprised under the following heads: human anatomy, physiology, pharmacology, pathology, medicine, surgery, obstetrics, gynæcology, forensic medicine, hygiene. The prize is open to all graduates of the University who have proceeded, or are proceeding, to a medical degree in the University. Candidates, at the date of application, shall not be Radcliffe Fellows; but the provision that candidates shall not have exceeded 12 years from the date of passing the last examination for the degree of B.A. is upon this occasion so far suspended as to enable any graduate, who was eligible during the years of the war (1915, 1917, 1919) to be eligible for the next ensuing award (1923). Candidates are required to send in their memoirs to the Assistant Registrar on or before Friday, Dec. 1st, 1922. No memoir for which any University prize has been already awarded can be admitted to competition, nor may the prize be awarded more than once to the same candidate. Tuesday, March 20th, 1923, is the intended date of the award.

The *Romanes Lecture* 1923 will be delivered by Prof. Arthur Stanley Eddington, F.R.S., on May 24th, at 6 P.M., the subject being the Theory of Relativity and its Influence on Scientific Thought.

UNIVERSITY OF LONDON.—The following new chairs have been instituted: University chair of Bacteriology tenable at University College Hospital Medical School; University chair of Surgery tenable at St. Mary's Hospital Medical School. Applications are also invited for the vacant chair of Physiology tenable at St. Bartholomew's Hospital Medical College.—Sir William Collins will represent the University at the Congress of the Royal Sanitary Institute to be held at Bournemouth in July, 1922.—Students who have passed the Second Examination for Medical Degrees (Part II.) will in future be exempted from examination in physiology at the Intermediate Examination in Science.—Prof. A. D. Waller, F.R.S., was re-elected director, and Dr. T. D. Lister treasurer of the Physiological Laboratory until the end of the session 1921–22.

Candidate's Fees.—(1) The following increases in fees were approved for medical examinations held after Sept. 1st, 1922: Second Medical Examination, Part I., from 2 to 3 guineas; Second Medical Examination, Part II., from 8 to 9 guineas; M.B., B.S. Examination from 10 to 12 guineas (either group 6 guineas). (2) It was resolved that an additional fee of £1 1*s.* be charged to a candidate who takes the External Final Pass Examination instead of honours after having taken his subsidiary honours subject.

Lectures in Pharmacology.—A course of four lectures on Some Recent Developments in Pharmacology will be given by Dr. H. H. Dale, F.R.S., at the London (R.F.H.) School of Medicine for Women, Hunter-street, London, W.C., on Wednesdays, Feb. 22nd, March 1st, 8th, and 15th, at 5 P.M. The chair at the first lecture will be taken by Prof. Fred Ransom. The syllabus is as follows: Lect. 1, Ergot; Lect. 2, Capillary Poisons; Lect. 3, Alkaloids for Cinchona and Ipecacuanha; Lect. 4, Artificial Specific Remedies. The lectures, which will be illustrated by lantern slides and accompanied by practical demonstrations, are addressed to students of the University and others interested in the subject. Admission is free without ticket.

UNIVERSITY OF SHEFFIELD.—The Council at its last meeting made the following appointments: Mr. A. J. Saxton, M.Sc. Sheffield, to be Assistant Lecturer in Physics; Mr. L. W. Cole, B.Sc. Lond., to be Assistant Lecturer and Demonstrator in Botany. Dr. H. W. Southgate to be Lecturer in Pharmacology. Mr. E. F. Finch and Dr. V. Townrow to be Assistant Curators of the Pathological Museum. Dr. A. G. Yates to be Demonstrator in Medical Pathology.

In examinations recently held the following candidates were successful:—

Final M.B., Ch.B.—Hyman Finklestone and Mary P. Gell.
Diploma in Public Health.—Dorothy E. Mathews and John Rennie.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS, GLASGOW.—At an examination held recently the following were admitted as Fellows of Faculty:—

Matthew White, M.A., M.B., Ch.B., Glasgow; Purnananda Roy, M.B. (Calcutta Univ.), Calcutta.

ROYAL COLLEGE OF SURGEONS OF ENGLAND.—The ordinary Council meeting was held on Feb. 9th, with Sir Anthony Bowlby in the chair.—A report was read from the Court of Examiners respecting candidates found qualified for the Diploma of Member, and it was agreed that diplomas should be awarded to 91 candidates mentioned in the report.—A report was read from the secretary to the Conjoint Examining Board respecting candidates found qualified for the Diploma in Ophthalmic Medicine and Surgery, and it was agreed to grant diplomas to 11 candidates jointly with the Royal College of Physicians.—The President announced that in pursuance of the provisions of the Bradshaw Bequest, he had appointed Sir William Thorburn as Bradshaw lecturer for the ensuing year.—Mr. Walter G. Spencer was appointed Thomas Vicary lecturer for the coming year.—Mr. Raymond Johnson was re-elected a member of the Court of Examiners.—Dr. W. S. A. Griffith was re-elected as representative of the College on the Central Midwives Board for one year from March 31st next.—Mr. H. J. Waring was re-elected as representative of the College on the General Medical Council for a period of five years.—A letter was read from Mr. Treacher Collins resigning his appointment as examiner in ophthalmic medicine and surgery in view of the approaching termination of his period of office as surgeon to the Moorfields Hospital. This resignation was accepted with regret, and it was agreed to advertise the vacancy on April 8th next.—Mr. J. Herbert Fisher and Sir W. T. Lister were appointed to conduct the special examinations in ophthalmology for Fellows of the College during the ensuing year.—Mr. Clement E. Shattock was appointed pathological assistant to the museum.—The President reported that a meeting of the Fellows would be held at the College on Thursday, July 6th next, for the election of three Fellows into the Council in the vacancies occasioned by the retirement in rotation of Sir Charles A. Ballance, Sir William Thorburn, and Mr. McAdam Eccles; that notice of the meeting would be given to the Fellows by advertisement and by circular on March 10th; that March 30th would be the last day for the nomination of candidates; and that a voting paper would be sent on April 4th to every Fellow of the College whose address was registered at the College.

POST-GRADUATE WORK IN GYNÆCOLOGY.—Owing to the frequency of complaints of a dearth of gynæcological teaching for post-graduates in London, the staff of the Hospital for Women, Soho-square, London, W. 1, has organised a scheme to meet the demand. Three sessions are being held in the year, January, March, and October, each of six weeks' duration. The hospital contains 68 beds and over 14,000 out-patients attend in the course of a year. There is a well-equipped laboratory and museum, and an installation of the latest X ray plant for the treatment of carcinoma of the uterus. The next session begins on March 13th; particulars may be obtained from the Dean at the hospital.

CONFERENCE ON HEALTH EXPENDITURE.—At a meeting of bodies concerned in health work, convened by the National Council of Public Service and held at 33, Bloomsbury-square, London, W.C. 1, on Feb. 9th, the chair was taken by Lord Astor and a resolution to the following effect was unanimously adopted:—

That in view of the fact that national expenditure on public health (apart from housing) is relatively small, while the actual results in the saving of life—in increased longevity and in improved physical capacity—are by comparison very large, and that money spent on public health has proved itself to be the highest form of economy; this conference, while recognising that normal expansion must under existing circumstances be postponed, urges the Government to avoid *curtailment* in national expenditure on public health.

Copies of this resolution were sent to the Prime Minister and the Minister of Health.

OPHTHALMOLOGICAL SOCIETY OF THE UNITED KINGDOM.—The next annual congress of this society, of which Mr. J. Herbert Fisher is President, will be held on May 11th, 12th, and 13th, at the Royal Society of Medicine, 1, Wimpole-street, London, W. 1. The arrangements will be as follows: May 11th, 10 A.M., Presentation of Edward Nettleship Prize; Papers. 2.15 P.M., Discussion on "Industrial Diseases of the Eye (excluding Accidents, Miners' Nystagmus, and Glass-blowers' Cataract"; to be opened by Dr. T. M. Legge and Mr. Bernard Cridland. 5 P.M., business meeting. On Friday, May 12th, the morning will be devoted to papers, while in the afternoon a visit will be paid to St. Bartholomew's Hospital, West Smithfield, E.C. At 8.30 P.M. there will be pathological demonstrations with epidiascope and microscopes of tuberculosis of the eye. The morning of Saturday, May 13th, will be devoted to papers on various subjects. Members desirous of reading papers, showing cases or specimens, or taking part in the discussions, are requested to communicate as soon as possible with the hon. secretary, 14, Portland-place, London, W. 1.

THE Welsh National School of Medicine has instituted a diploma in tuberculosis as a natural corollary to the university chair in this subject.

Dr T. W. Mitchell has been elected President of the Society for Psychical Research, London, in succession to Dr. William MacDougall, F.R.S., late of Oxford.

BELFAST MATERNITY HOSPITAL.—At a meeting of the governors of the hospital held on Feb. 9th, Dr. T. Hardy Greer and Dr. S. R. Foster were elected assistant surgeons. The two retiring surgeons, Dr. H. D. Osborne and Dr. Malcolm B. Smyth, were elected consulting surgeons.

ROYAL INSTITUTION.—On Tuesday, Feb. 21st, at 3 P.M., Sir Arthur Keith will begin a course of five lectures at the Royal Institution on Anthropological Problems of the British Empire. Series I.: Racial Problems in Asia and Australasia. The Friday evening discourse on Feb. 24th will be delivered by Prof. John Joly on the Age of the Earth.

LONDON DERMATOLOGICAL SOCIETY.—A meeting of this Society will be held on Feb. 21st, at 4.30 P.M., at St. John's Hospital, Leicester-square, London, W.C., when clinical cases will be shown by Dr. J. L. Bunch, Dr. Dennis Vinrace, Dr. W. K. Sibley, Dr. S. R. Kapoor, and Dr. W. Griffith. At 5.15 Dr. A. Knyvett Gordon will read a paper on the Clinical Significance of Histological Examination of the Blood.

Commander William Seaman Bainbridge, M.C., M.D., of the of the United States Navy, has had conferred upon him by the French Government the officer's cross of the Legion of Honour. Commander Bainbridge worked with the allied armies at various fronts during the war, in addition to other duties, and prepared a report on medical and surgical developments of the war, which was published by the U.S. Bureau of Medicine and Surgery. He represented the United States at the Congrès International de Médecine et de Pharmacie Militaires held in Brussels during 1921, and has been engaged in reconstruction work at the naval hospital in New York.

LEEDS PUBLIC DISPENSARY.—The keen interest which the management of this institution shows in its patients is evidenced by the statement in the ninety-seventh annual report (July, 1920–June, 1921) that extensive alterations are being carried out to make provision for beds, so that patients who have been operated upon and are not fit to return home can be kept for a few days under supervision. This and other improvements including a new X ray department have been made possible to a considerable extent by a handsome grant of £3000 from the Leeds Workpeople's Hospital Fund Committee, an example which, if generally followed in other parts of the country, would do much to lessen the financial straits in which many of our healing institutions find themselves. During the year, 24,497 new patients were received, and the number of actual attendances was 91,708, or nearly 1800 per week. The accident department treated an average of 23 cases a day. Unfortunately, the debit balance of the institution is nearly £1400, while to meet the provision for in-patients an additional income of some £2000 a year will be required. A useful feature of the report is a table showing the number of patients treated from outside the boundary of Leeds—namely, 1963—according to towns and villages alphabetically arranged.

SOCIETY OF SUPERINTENDENTS OF TUBERCULOSIS INSTITUTIONS.—At the annual meeting held on Jan. 30th Dr. S. Vere Pearson was unanimously elected president for the ensuing year, Dr. Peter W. Edwards was made hon. secretary and treasurer, and the following members were placed on the executive committee: Dr. Esther Carling, Dr. Niven Robertson, Dr. Marcus Paterson, Dr. W. G. Kinton, Dr. T. Gordon Pugh, Dr. Jane Walker, Dr. H. E. Watson, and Dr. James Watt. A vote of thanks was passed to Dr. Jane Walker for her hospitality and zeal during her two years as president. The question of a special examination for nurses in tuberculosis was brought up again and it was decided to approach the General Nursing Council on the question. Subcommittees to consider diet and costs in institutions, the staffing of institutions, and the insurance of ex-sanatorium patients were reappointed. The Secretary detailed the action taken by the society in connexion with the issuing of Circular 280 by the Ministry of Health. It was decided that a subcommittee should meet the Ministry to discuss a uniform scheme of account keeping, and that the whole of Circular 280 be brought before the Tuberculosis Joint Council. Dr. Watt pointed out that the Tuberculosis Society agreed with this society that the relation between the tuberculosis officer and the medical superintendent could be adjusted without official interference. Dr. Gordon Pugh said that his main concern was with the patients under his care, and he would object ouly to a tuberculosis officer coming to examine his patient or taking a complaint. Mr. Butt opened a discussion on book-keeping.

Dr. A. G. Jenner has been appointed medical officer of health for Stockport.

Colonel G. A. Moore, C.M.G., D.S.O., M.D., and Dr. A. G. Paterson have been made Knights of Grace of the Order of St. John of Jerusalem in England.

NAVAL MEDICAL COMPASSIONATE FUND.—A meeting of the subscribers to this Fund will be held at 11.30 A.M. on April 11th, at the medical department of the Navy, 68, Victoria-street, S.W., to elect six directors of the Fund.

ASSOCIATION OF ECONOMIC BIOLOGISTS. — The annual general meeting of this Association will be held on Feb. 24th, at 2.30 P.M., at the Imperial College of Science, London, S.W., when Dr. John Rennie will read a paper on the Present Position of Bee Disease Research and will give a demonstration of Polyhedral Disease in Tipula Species.

ROYAL SOCIETY OF MEDICINE: SECTION OF ORTHOPÆDIC SURGERY.—A dinner to celebrate the formation of this newly-constituted section was held at the Imperial Restaurant, London, W., on Feb. 7th. Mr. Laming Evans, the President, was in the chair, and between 30 and 40 members and guests were present. Among the guests were Sir John Bland-Sutton, Sir Anthony Bowlby, Sir George Makins, Sir Arbuthnot Lane, Sir D'Arcy Power, Sir Thomas Horder, Sir Crisp English, Sir Harry Baldwin, Sir John MacAlister, Colonel Pilcher, R.A.M.C. Sir John Bland-Sutton proposed the health of the new section, coupling it with the name of the president, who responded. The guests were toasted by Mr. E. Muirhead Little, and Sir Anthony Bowlby and other guests replied.

SUSSEX EYE HOSPITAL.—In the annual report of this hospital, submitted at the annual meeting at Brighton on Feb. 8th, it was stated that the total ordinary expenditure which in 1920 was £2422, in 1921 rose to £2544. In 1920 the income did not meet the expenditure by £797 11*s.* 5*d.*, and in 1921 there would have been a discrepancy of £726 2*s.* 4*d.* but for legacies amounting to £350; £207 were received as contributions from patients. Strong appeals were made at the meeting for increased support, and considering the economies made disappointment was expressed that the deficiency was still a large one. A pathological laboratory has been added to the hospital. In-patients during 1921 numbered 280, against 249 in 1920, and out-patients 3789, against 3163.

THE LATE DR. E. SERGEANT.—Dr. Edward Sergeant died at his residence at Wrea Green, near Kirkham, in his seventy-third year. Dr. Sergeant in 1890 was appointed county medical officer of health for Lancashire, a position which he held until 1917, when he resigned on account of ill-health, but his services were retained by the county council in a consultative capacity. Dr. Sergeant was a native of Preston, qualified in 1871 as L.R.C.P., M.R.C.S., and L.S.A.; he received his medical education at St. Thomas's Hospital, London, when he gained the Cheselden Medal for surgery and surgical anatomy. During the Franco-German war he was assistant surgeon at Bingen-on-the Rhine. He was senior house surgeon at the Bolton Infirmary in 1874, and was appointed medical officer of health and public analyst to the borough of Bolton, an office which he held for 16 years. He was the author of numerous papers on public health subjects.

MANCHESTER ROYAL INFIRMARY.—The annual report states that while 1920 was a record year for annual subscriptions, a still further increase was obtained last year. In spite of this support and of increased sums received from patients and other sources, the year's working showed a deficit of £23,255. Moreover, if the infirmary is to establish its claim to a Government grant of £11,628, there must be increased new subscriptions or revenue to the amount of £3311. It is a fundamental condition of participation in the £500,000 allotted by the Government for voluntary hospitals that the sum allocated to any one hospital be met pound by pound with new money. It remains for the supporters of the voluntary principle to subscribe the £3311 necessary to enable the infirmary to establish its claim to £11,628 from the Government grant. The contributions to the infirmary and the local hospitals by employers in industrial undertakings, and workers of all grades are not in proportion to the vast numbers of workers employed in the districts served by the various hospitals. The population of the Manchester and Salford area is 946,000, but the sum distributed by the Hospital Saturday Fund to hospitals in the area in 1920 was only £5548. The Birmingham area with a population of 868,000 raised £30,000, and Newcastle-on-Tyne with 275,000 people, £28,256. Manchester and Salford come fifteenth in a list which includes such towns as Cardiff, Leicester, Sunderland. It is suggested that machinery should be set up in order to obtain coöperation of effort from all possible sources.

Sir William Thorburn has been elected President of the St. Andrew's Society of Manchester.

THE Committee appointed to investigate and report on the Lomax charges against public asylum administration met in public for the first time on Feb. 16th at the Ministry of Health.

ROYAL DENTAL HOSPITAL.—The annual general meeting of the governors will be held at the hospital on Thursday, March 16th, at 5 P.M., when the chair will be taken by Mr. Leonard Matheson, L.D.S.

DECLINE OF INFLUENZA IN SCOTLAND. — The Registrar-General for Scotland reports that although the death-rate for the week ending Feb. 11th was still above the average, the figures show a decided abatement of the influenza epidemic.

NATIONAL COUNCIL FOR COMBATING VENEREAL DISEASES.—At a meeting of the Council held on Feb. 13th at the Barnes Hall, 1, Wimpole-street, London, W., the following resolution was unanimously passed:—

"The National Council for Combating Venereal Diseases urges upon the Government the desirability of carefully considering what further steps can be taken to secure the adequate prevention and treatment of venereal diseases. They would specially request that efforts should be made to secure the continuous treatment of infective persons."

MEDICO-PSYCHOLOGICAL ASSOCIATION OF GREAT BRITAIN AND IRELAND.—The next quarterly meeting of this Association will take place on Feb. 23rd, at 11, Chandos-street, Cavendish-square, London, W., at 2.45 P.M., under the Presidency of Dr. C. Hubert Bond, C.B.E., F.R.C.P. A paper entitled the Use of Analysis in Diagnosis will be read by Dr. T. S. Good.

An informal dinner has been arranged at the Imperial Restaurant, Regent-st., W., at 5*s.* a head, exclusive of wines.

THE LATE DR. A. M. SYDNEY-TURNER.—Dr. Alfred Moxon Sydney-Turner died on Feb. 1st at Hove, where he had been in residence since he retired from practice. He took the L.S.A. in 1876 from Guy's Hospital and became M.R.C.S. in the following year. After a short residence at Liverpool he settled at Gloucester and was one of the surgeons attached to the Gloucester General Infirmary, to the Dispensary, and to the Children's Hospital, and was acting surgeon to the Garrison Artillery Volunteers. He was also for some years coroner for the city. At Hove he interested himself extensively in local affairs. In 1900 he was elected a member of the corporation, but owing to an affection of the eyes he retired in 1905. Recovering, however, he was soon re-elected to the town council, where he served from 1909 to 1919, during which period he was chairman of the education authority for three years. For some time Dr. Sydney-Turner edited the *Guy's Hospital Gazette*. He was 73 years of age and leaves a widow and two sons.

LITERARY INTELLIGENCE. — Messrs. J. and A. Churchill announce the following volumes for early publication: The Colloid Chemistry of the Proteins, by Prof. Wolfgang Pauli, translated by P. C. L. Thorne, M.A.; The Principles of Radiography, by J. A. Crowther, Sc.D., F.Inst.P., University Lecturer in Physics applied to Medical Radiology, Cambridge.—Mr. Henry Kimpton announces for early issue the following books: Hare's Text-book of Practical Therapeutics, eighteenth edition, Epidemiology and Public Health, in three volumes, by Victor C. Vaughan, M.D., LL.D., assisted by Henry F. Vaughan, M.D., and George T. Palmer, M.D.; Vol. I., Respiratory Infections. Operative Technics: A Manual for Practitioners and Students of Dentistry, second edition. Electro-Radiographic Diagnosis, by Howard Riley Raper, D.D.S.; the book treats of the electric test for pulp vitality.

THE LATE DR. A. R. LAING.—Dr. Andrew Ross Laing, who died at his residence in Aberdeen on Jan. 26th after an operation, was born in Aberdeen in 1872. He graduated at the University of Aberdeen, taking the M.B., C.M. in 1897, D.P.H. in 1899, and the M.D. in 1906. He was for some time in practice in Market Harborough, and went out as a civil surgeon with the Field Force during the South African War in 1899–1900. He returned home on account of his health in 1901, was appointed assistant in pathology at the Aberdeen University, and making a special study of bacteriology, he was subsequently appointed city bacteriologist. Dr. Ross was also medical officer to the Aberdeen Dispensary and lecturer on hygiene at the Aberdeen training centre. His publications include the description of a convenient form of anaerobic apparatus and articles on disinfection. Latterly his large private practice absorbed his energies. Dr. Ross was much esteemed by his patients and appreciated by his friends for many social qualities. He leaves a widow and two young children.

Parliamentary Intelligence.

HOUSE OF COMMONS.

TUESDAY, FEB. 7TH.

National Health Insurance Bill.

Sir A. MOND, Minister of Health, presented a Bill to amend the National Health Insurance Act which, it is understood, provides for the increase of the payments of both employers and workpeople by a halfpenny per week. The employers contribution of 5*d.* for both men and women will be increased to 5½*d.* by the Bill, and in the case of workpeople, men will in future pay 5½*d.* and women 4½*d.* The State contributions will remain as at present. The new rates are stated to be part of the scheme of national economy recommended by the Geddes Committee.

WEDNESDAY, FEB. 8TH.

Mr. SHORTT, Home Secretary, presented a Bill to amend the law with respect to offences against persons under the age of 16, and with respect to penalties under Section 13 of the Criminal Law Amendment Act, 1885, and to repeal Section 5 of the Punishment of Incest Act, 1908.

THURSDAY, FEB. 9TH.

Continuance of Coroners Act, 1917.

Mr. PERCY asked the Secretary for the Home Department whether, in view of the economy and efficiency derived under the provisions of the Coroners Act, 1917, and the Juries Act, 1918, the Government would continue such Acts as permanent measures.—Mr. SHORTT replied: I hope to bring in shortly a Bill to continue the Coroners Act, 1917, and so much of the Juries Act, 1918, as relates to Coroners.

Importation of Santonin.

Mr. MOSLEY asked the President of the Board of Trade whether any decision had been come to by the Board on the question of an appeal from the decision of the referee on Dec. 10th last that santonin had been improperly included in the schedule of articles chargeable with duty under Part I. of the Safeguarding of Industry Act.—Mr. BALDWIN replied: The judgment in question became effective on Dec. 20th last, when it was signed, and santonin was withdrawn from the lists of dutiable articles as from that date. Notice of its withdrawal was given in the press.

Treatment of Asylum Patients.

Mr. TREVELYAN THOMSON asked the Minister of Health whether, in view of the difficulties which had arisen in securing some of the evidence necessary to enable his departmental committee to make a complete investigation into the charges made about the treatment of asylum patients, he would reconsider the desirability of recommending the appointment of a Royal Commission, with full powers both of investigation into the present system and of recommendation as to the future treatment of all types of mental disorder, and thus allay the growing feeling of disquiet on this matter—Captain LOSEBY asked the Minister of Health, in connexion with a departmental committee which was recently set up to inquire into and report upon the charges made against asylum administration by Dr. Lomax, in a book entitled "The Experiences of an Asylum Doctor," whether he was aware that Dr. Lomax had expressed his unwillingness to give evidence before this departmental committee upon the alleged grounds that it was so constituted as to render difficult an impartial verdict, and notably because one member of the committee had openly and publicly prejudged the issue, and because all of the members were representative of the system criticised; that the National Asylum Workers' Union had refused to allow its members to give evidence upon the same or similar grounds; that the terms of reference were such as to shut out a mass of evidence corroborating or refuting the charges made in the book; that the committee had no power to administer an oath, pay the expenses of witnesses properly called, or protect witnesses when called; that charges similar to the charges made by Dr. Lomax were being repeated almost daily by responsible persons in the public press; that some 6000 ex-Service men were being detained under the system thus openly attacked; and that Dr. Lomax and other persons had expressed their anxiety to give evidence before any impartial and disinterested tribunal; and whether, in view of the widespread public anxiety that the actual facts should be elucidated, he would advise the setting up of a Royal Commission with wide powers of investigation and report, upon which the House of Commons were adequately represented.—Sir A. MOND replied: The question of the appointment of a Royal Commission on the point raised by my hon. friends is under my consideration. I would, however, point out that it would necessarily involve a long delay before any practicable steps could be taken, and postpone reforms which by general agreement might, I hope, be introduced at an early date. In view of the necessity for an expeditious investigation into the allegations made by Dr. Lomax I have appointed a departmental committee. As regards the personnel of the committee I am informed that neither of the medical members is or has been associated with any asylum maintained out of public funds, nor is it correct to say that the chairman is in any sense a representative of the system criticised. I fear it is impossible for me to obtain the services of any expert who has not already shown interest in Dr. Lomax's criticisms. I regret that Dr. Lomax is not prepared to substantiate before the committee the charges which he has publicly made and that the National Asylum Workers' Union have refused to defend their members against Dr. Lomax's charges; but I cannot admit that either he or they are entitled to dictate the composition of any tribunal of inquiry on the issues raised, for the appointment of which I am solely responsible.

Treatment of Expectant Mothers.

Mr. RHYS DAVIES asked the Minister of Health whether he had received protests from public and other bodies against the action of his department relative to the curtailment of assistance to local authorities in the treatment of expectant mothers and children; and whether he was prepared in view of those protests, to adopt a more generous attitude on the subject.—Sir A. MOND replied: Yes, sir. I have received protests against a reduction of grant on maternity and child welfare services. I hope that it will be found possible to continue the Exchequer assistance to local authorities so as to enable them to carry on their maternity and child welfare services unimpaired.

Medical Services at Willesden.

Mr. GILLIS asked the Minister of Health whether he was aware of the fact that the private medical practitioners of the Willesden district were attempting to bring professional pressure to bear upon the medical staff of the urban district council of Willesden with a view to causing the cessation of the medical service that had been provided for the public by the district council; and whether he proposed to take any steps to protect the interests of the medical staff and to secure the continuation of those necessary public medical services which were so popular with the public.—Sir A. MOND replied: I have been in communication with the Willesden Urban District Council and the British Medical Association in regard to the medical services provided by the council, but I am not aware of any professional pressure which is being brought to bear on the council's medical staff by private practitioners in Willesden.

FRIDAY, FEB. 10TH.

Ex-Service Men in Lunatic Asylums.

Captain LOSEBY moved an amendment to the Address in reply to the Speech from the Throne regretting that no reference had been made in that speech to the amelioration of the condition of ex-Service men at present confined in lunatic asylums. The amendment was negatived.

Bills Presented.

Sir HERBERT NIELD presented a Bill "to provide for the superannuation of persons employed by local authorities and other public bodies."—Sir FRANCIS BLAKE presented a Bill "to amend the Bastardy laws and to make further and better provision with regard to the children of unmarried parents."—Commander CHILCOTT presented a Bill "to amend the law relating to the guardianship, maintenance, custody, and marriage of infants."

MONDAY, FEB. 13TH.

Wages in London Hospitals.

Mr. TILLETT asked the Minister of Labour whether he was cognisant of the fact that certain boards of governors of the hospitals of London had ceased to pay wages in accordance with the award of the industrial court, and that no agreement had been substituted; and what steps he proposed to take in connexion with the question.—Sir MONTAGUE BARLOW (Parliamentary Secretary to the Ministry of Labour) replied: I am aware that certain London hospital authorities have informed the National Federation of General Workers that they do not desire to continue to be bound by the terms of the Industrial Court Award. We have been in touch with the parties, and I am informed that steps are being taken by several of the important London hospital authorities to endeavour to arrange a meeting forthwith with the unions concerned to discuss the general position.

Poisoning by Carbon Monoxide.

Sir WILLIAM DAVISON asked the Prime Minister whether his attention had been called to the statement made by the Liverpool coroner on Feb. 3rd at the conclusion of an inquest on the bodies of four members of a family named Craig, who were found to have died from poisoning by carbon monoxide due to a defect in the gas fittings of their bedroom, to the effect that so long as this poisonous substance was allowed to remain in the supply of gas for illuminating and heating

purposes it was dangerous for anyone to have a gas fire in his bedroom; and whether he would introduce legislation to protect the public from this serious though avoidable risk.—Mr. BALDWIN (President of the Board of Trade) replied: I am aware of the case to which my hon. friend refers, but I have not seen any report of the proceedings which contains the statement mentioned. The draft of the Special Order proposed to be made by the Board of Trade, the effect of which is to prohibit the supply of any gas containing carbon monoxide unless it has a distinctive pungent smell, has been already approved by a Resolution of this House, and the Order will be made as soon as the necessary Resolution has been passed by another place.—Major Sir HENRY NORMAN asked the Secretary for the Home Department if there is any limit to the percentage of carbon monoxide in gas supplied for domestic use; if his department is kept informed of the actual percentage in gas supplied; and, if so, will he state what it is in typical cases.—Mr. BALDWIN replied: There is no statutory limitation of the proportion of carbon monoxide in gas supplied for domestic purposes. Information is obtained from time to time by the Board of Trade from which it is possible to estimate the proportion of carbon monoxide in the gas. There are very few cases in which it would appear that the proportion would exceed 20 per cent., and, generally speaking, the proportion is considerably below that figure.

Bills Presented.

Mr. A. HENDERSON presented a Bill to provide that a woman charged with the murder of her infant child may, under certain conditions, be convicted of manslaughter.—Sir F. BANBURY presented a Bill to prohibit the vivisection of dogs.

Municipal Milk Supplies.

Mr. MYERS asked the Minister of Health whether he could give particulars of the local authorities which distributed milk free for mothers and children and of those which distribute milk at reduced prices; and the conditions laid down by the local authorities under Circular 185 of his department, and the prices, if any, charged by them for milk distributed under their auspices.—Sir A. MOND replied: Of the 416 local authorities which are carrying out maternity and child welfare schemes about 400 distribute milk at less than cost price to mothers and children on the conditions laid down by Circular 185. Practically all of them have adopted a scale of income below which milk is supplied free of cost and about 100 have adopted a further scale within which milk is supplied at half price.

Medical Practitioners and the Lunacy Act.

Mr. JOHN DAVISON asked the Minister of Health whether he was aware that the Lunacy Board of Control had recently on several occasions construed the words medical practitioner, occurring in Section 49 of the Lunacy Act, 1890, into the words mental specialists; and whether, in view of the fact that this section supplied the only efficient safeguard against detention under the hand of an unjust practitioner who might desire to keep a patient in an asylum for his own purposes, he would take steps to secure that the opinion of a general practitioner should be taken in such cases.—Sir A. MOND replied: The applications under the section since July 1st last have related to five patients only. In two cases the Board of Control accepted the medical practitioner suggested; in two the Board asked for some other practitioner to be appointed in the place of one of the two suggested; in the fifth case an application by the husband was acted on in place of an application by someone not related to the patient. As regards the second part of the question, in the opinion of the Board of Control the judgment of a medical practitioner who has made a special study of mental illness is of greater value than that of a practitioner who has had relatively little experience of such cases.

TUESDAY, FEB. 14TH.

Ex-Service Men and Malaria.

Mr. FREDERICK ROBERTS asked the Minister of Pensions whether he was aware that many ex-Service men subject to malaria attributable to military service were unable to obtain any pension whilst suffering from this disease because it was intermittent in character, and had usually disappeared before the man could be sent to a medical board; and whether, in order that justice might be done to these men, arrangements would be made whereby the certificate of the man's local doctor would be accepted as evidence of his disability.—Major TRYON replied: In awarding pension for disabilities of an intermittent character regard is paid to the probable course of the disease during the period of the award. My right hon. friend is aware that in dealing with claims to pension for malaria difficulty sometimes arises in establishing the existence of the disease owing to the fact that it is active at long intervals only and for very short periods. He is, however, considering what better arrangements consistent with his powers under the Royal Pensions Warrants can be made to meet this difficulty.

Medical Diary.

Information to be included in this column should reach us in proper form on Tuesday, and cannot appear if it reaches us later than the first post on Wednesday morning.

SOCIETIES.

ROYAL SOCIETY OF MEDICINE, 1, Wimpole-street, W.

Tuesday, Feb. 21st.

SPECIAL GENERAL MEETING OF FELLOWS: at 5 P.M. To be followed immediately by a

GENERAL MEETING OF FELLOWS: Ballot for Election to the Fellowship. (Names already circulated.)

MEETINGS OF SECTIONS.

PATHOLOGY: at 8.30 P.M.

Communications, &c.:

Dr. M. H. Gordon: Some Recent Studies of Streptococci.

Dr. J. W. Trevan: An Apparatus for Measuring very Small Quantities of Fluid.

Dr. J. C. Mottram, Dr. W. Cramer, and Dr. A. H. Drew: Demonstration of Some Effects of Exposure to Radium and of Withholding of Vitamins on Fat Absorption.

Dr. E. H. Kettle: Demonstration of Pathological Specimens: (*a*) Mediastinal Tumour, (*b*) Diphtheria in a Pneumonic Lung, (*c*) Double Cardiac Infection.

Thursday, Feb. 23rd.

BALNEOLOGY AND CLIMATOLOGY: at 4.30 P.M.

Discussion on "The Ætiology of Gout," to be opened by Dr. R. L. Jones Llewellyn.

Members of other Sections are invited to be present.

Members, with guests, will dine together at 7 P.M., the place of the dinner to be announced at the meeting. As matters with regard to the organisation of the Section will be discussed at the dinner it is hoped that there will be a large attendance. Those intending to be present at the discussion and at the dinner are requested to send their names to Dr. C. F. Sonntag, 80A, Belsize Park-gardens, N.W. 3, not later than Tuesday, Feb. 21st.

On the morning of Friday, Feb. 24th, this Section will have a clinical meeting at one of the London hospitals. The arrangements will be announced at the meeting of Feb. 23rd.

UROLOGY: at 8.30 P.M.

Paper:

Prof. P. J. Cammidge: The Source of the Amylolytic Ferment of the Urine.

Dr. G. A. Harrison: Glycosuria in Renal Disorders.

Members of other Sections who are interested in the subject are particularly invited to attend and join in the discussion.

Friday, Feb. 24th.

STUDY OF DISEASE IN CHILDREN: at 5 P.M. (Cases at 4.30 P.M.).

Cases:

Dr. B. T. Parsons-Smith: (1) Case of Congenital Mitral Stenosis; (2) Case for Diagnosis.

Other cases will be shown.

Paper:

Dr. C. P. Lapage and Dr. W. J. S. Bythell: Tonic and Atonic Hearts in Children (with Radiographic Illustrations).

EPIDEMIOLOGY AND STATE MEDICINE: at 8 P.M.

Paper:

Dr. Evelyn D. Brown: The Relation between Puerperal Septicæmia and other Infectious Diseases, with reference to the admission of maternity cases into isolation hospitals.

MEDICAL SOCIETY OF LONDON, 11, Chandos-street, Cavendish-square, W.

MONDAY, Feb. 20th.—9 P.M., Third Lettsomian Lecture: Sir Leonard Rogers: Amœbic Liver Abscess.

LONDON DERMATOLOGICAL SOCIETY, St. John's Hospital, 49, Leicester-square, W.C.

TUESDAY, Feb. 21st.—4.30 P.M., Clinical Cases.—5.15 P.M., Dr. A. K. Gordon: Clinical Significance of Histological Examination of the Blood.

LECTURES, ADDRESSES, DEMONSTRATIONS, &c.

WEST LONDON POST-GRADUATE COLLEGE, West London Hospital, Hammersmith-road, W.

MONDAY, Feb. 20th.—5 P.M., Mr. Bishop Harman: Squint.

TUESDAY.—5 P.M., Dr. Pritchard: Some Intravenous Forms of Treatment.

WEDNESDAY.—5 P.M., Mr. Donald Armour: Practical Surgery.

THURSDAY.—5 P.M., Prof. E. H. Starling: On Compensation and its Failure in Heart Disease. (Open to all Medical Practitioners.)

FRIDAY.—5 P.M., Dr. Grainger Stewart: Nervous Diseases (2).

SATURDAY.—10 A.M., Dr. Arthur Saunders: Medical Diseases of Children.

Daily:—10 A.M., Visit of Post-Graduates to Wards. 2 P.M., In-patient, Out-patient Clinics and Operations.

NORTH-EAST LONDON POST-GRADUATE COLLEGE, Prince of Wales's General Hospital, Tottenham, N. 15.

MONDAY, Feb. 20th.—3.30 P.M., Dr. L. Yealland: Examination of the Nervous System.

TUESDAY.—2.30 P.M., Dr. J. Metcalfe: X Ray Treatment.

THURSDAY.—4.30 P.M., Mr. H. W. Carson: Intestinal Obstruction.
Daily:—2.30 P.M., In-patient and Out-patient Clinics, Operations, &c.

SOUTH-WEST LONDON POST-GRADUATE ASSOCIATION, St. James' Municipal Hospital, Ouseley-road Balham.
WEDNESDAY, Feb. 22nd.—4 P.M., Dr. C. Lakin: A Clinical Demonstration.

NATIONAL HOSPITAL FOR DISEASES OF THE HEART POST-GRADUATE COURSE, Westmoreland-street, Marylebone, W.
MONDAY, Feb. 20th.—5.30 P.M., Dr. Hamill: Aneurysm.
Daily:—10 A.M. and 2 P.M., Out-patients and In-patients.

NATIONAL HOSPITAL FOR THE PARALYSED AND EPILEPTIC POST-GRADUATE COURSES, Queen-square.
MONDAY, Feb. 20th.—12 noon, Dr. Greenfield: Poliomyelitis and Encephalitis Lethargica. 2 P.M., Dr. Hinds Howell: Out-patient Clinic. 3.30 P.M., Dr. Adie: Combined Degeneration in the Spinal Cord.
TUESDAY.—2 P.M., Dr. Grainger Stewart: Out-patient Clinic. 3.30 P.M., Dr. James Taylor: Ocular and Visual Disturbances in Disease of the Nervous System.
THURSDAY.—2 P.M., Dr. Kinnier Wilson: Out-patient Clinic. 3.30 P.M., Dr. Grainger Stewart: Tumours of the Spinal Cord (1).
FRIDAY.—2 P.M., Dr. Gordon Holmes: Out-patient Clinic. 3.30 P.M., Dr. Grainger Stewart: Tumours of the Spinal Cord (2).

CANCER HOSPITAL, Fulham-road, S.W.
TUESDAY, Feb. 21st.—4 P.M., Sir Charles Ryall: Cancer of the Tongue.
FRIDAY.—4 P.M., Mr. W. Ernest Miles: Cancer of the Rectum.

HOSPITAL FOR SICK CHILDREN, Great Ormond-street.
THURSDAY, Feb. 23rd.—4 P.M., Mr. Pitts: Dental Aspects of Cleft Palate.

ST. JOHN'S HOSPITAL, 49, Leicester-square, W.C.
THURSDAY, Feb. 23rd.—6 P.M., Chesterfield Lecture: Dr. W. Griffith: The Bullous Eruptions.

ST. MARYLEBONE GENERAL DISPENSARY, 77, Welbeck-street, Cavendish-square, W.
Post-Graduate Course on Infant and Child Welfare.
WEDNESDAY, Feb. 22nd.—6 P.M., Dr. Eric Pritchard: The Modification of Milk.
FRIDAY.—The Uses of Dried Milk and Patent Foods.

BRITISH MEDICAL ASSOCIATION (CHESTERFIELD BRANCH) POST-GRADUATE COURSES.
FRIDAY, Feb. 24th.—(At Chesterfield Royal Hospital Board Room) 2.30 P.M., Prof. Phillips: Puerperal Pyrexia. 3.15 P.M., Dr. Nutt: Radiography of the Chest.

MANCHESTER ROYAL INFIRMARY POST-GRADUATE CLINIC.
TUESDAY, Feb. 21st.—4.30 P.M., Dr. E. M. Brockbank: Angina Pectoris.

ST. MARY'S HOSPITALS POST-GRADUATE LECTURE, Whitworth-street West Branch, Manchester.
FRIDAY, Feb. 24th.—4.30 P.M., Dr. Lacey: Leucorrhœa.

MANCHESTER FRENCH HOSPITAL, POST-GRADUATE LECTURES, 24, Acomb-street, Whitworth Park.
THURSDAY, Feb. 23rd.—4.30 P.M., Dr. A. C. Magian: Cancer of the Cervix.

MANCHESTER BABIES' HOSPITAL POST-GRADUATE LECTURE, Slade-lane, Manchester.
SATURDAY, Feb. 25th.—4 P.M., Dr. Catherine Chisholm: Acute Dyspepsia.

SALFORD ROYAL HOSPITAL.
THURSDAY, Feb. 23rd.—4.30 P.M., Mr. Smalley: Indications for Operation in Suppurative Diseases of the Middle Ear.

ROYAL INSTITUTE OF PUBLIC HEALTH, 37, Russell-square, W.
Lectures on Tuberculosis and Public Health.
WEDNESDAY, Feb. 22nd.—4 P.M., Dr. P. C. Varrier-Jones: Industrial Colonies and Village Settlements for the Consumptive.

PEOPLE'S LEAGUE OF HEALTH, Royal Society of Arts, John-street, London, W.C. 2.
Course of Lectures on the Mind and What We Ought to Know About It.
MONDAY, Feb. 20th.—6 P.M., Dr. R. S. Rows: Association of Ideas, Recognition, and Memory.

DONATIONS AND BEQUESTS.—Under the will of the late Mrs. Elin Maria Levgren, of Aberdeen, a sum of about £20,000 will be divided into 40 parts, of which six parts will be given respectively to the Aberdeen Royal Infirmary, the Aberdeen Dispensary, the Sick Children's Hospital, Aberdeen, the Morningfield Hospital, Aberdeen, and the Aberdeen Blind Asylum.

The late Mrs. Elizabeth Clarke, of Newton Abbot, Devon, has left by will to the Newton Abbot Hospital and Dispensary, Tudor Fund for Convalescents in connexion with that hospital, Moretonhampstead Convalescent Home, West of England Institution for the Instruction and Employment of the Blind, West of England Eye Infirmary, Exeter, Dr. Barnardo's Homes, Church of England Incorporated Society for Providing Homes for Waifs and Strays, Earlswood Asylum, Redhill, £1000 each; £500 each to her medical attendant, the Devon House of Mercy, Bovey Tracey, the Cripples' Home and Industrial Schools for Girls. One-sixth of the residue of the property goes to the King Edward's Hospital Fund.

Appointments.

St. Thomas's Hospital: HARVEY, S. E., M.R.C.S., L.R.C.P Lond.; BURNS, C. L. C., M.R.C.S., L.R.C.P. Lond.; BHANDARI, P. C., M.R.C.S., L.R.C.P. Lond.; DREW, J. G., M.R.C.S., L.R.C.P. Lond.; WILLIAMS, B. W., M.R.C.S., L.R.C.P. Lond.; HACKWOOD, J. F., M.R.C.S., L.R.C.P. Lond.; CHAVASSE, C. C. H., M.B., B.Ch. Oxon.; and WITHAM, H. N., M.R.C.S., L.R.C.P. Lond., Casualty Officers and Resident Anæsthetists. SLAUGHTER, H. L., M.R.C.S., L.R.C.P. Lond.; MCCLEAN, D., M.R.C.S., L.R.C.P. Lond.; WILLEY, H. L., M.B., B.Ch. Cantab.; and TALLERMAN, K. H., M.B., B.Ch. Cantab., Resident House Physicians. HAMILTON, C. K. J., M.B., B.Ch. Oxon., Resident House Physician for Children. PHILLIPPS, F. A., M.B., B.Ch. Cantab.; BURRELL, E. M., M.B., B.Ch. Cantab.; HARTLEY, S., M.R.C.S., L.R.C.P. Lond.; and SPIRA, J., M.R.C.S., L.R.C.P. Lond., Resident House Surgeons. BROCKMAN, E. P., M.B., B.Ch. Cantab., Resident Orthopædic House Surgeon. CHURCHER, J. C., M.R.C.S., L.R.C.P. Lond., Resident House Surgeon for Ear, Nose, and Throat. CARDELL, J. D. M., M.B., B.S. Lond., Senior Obstetric House Physician. BACK, G. A., M.R.C.S., L.R.C.P. Lond., Junior Obstetric House Physician. LOW, W. A., M.R.C.S., L.R.C.P. Lond., Senior Ophthalmic House Surgeon. HUMFREY, S. H. G., M.R.C.S., L.R.C.P. Lond., Junior Ophthalmic House Surgeon. CAVENAGH, J. B., M.B., B.Ch. Oxon.; YOUNG, W. A., B.Sc. Lond., M.R.C.S., L.R.C.P. Lond.; and PARSONS-SMITH, B. T., M.D. Lond., Clinical Assistants.

Surgeons under the Factory and Workshop Acts: TAYLOR, H. B., M.R.C.S. (Dorking); SCADE, W. J., M.B., Ch.B. Glasg. (Girvan).

Medical Referees under the Workmen's Compensation Act: TREVES, F. B., M.B. Camb., M.R.C.S., for County Court Circuit No. 49; HIGHAM, J. P., M.B., B.S. Durh., for County Court Circuit No. 15.

Vacancies.

For further information refer to the advertisement columns.

Bedford County Hospital.—Asst. H.S. £150.
Bethlem Royal Hospital, Lambeth-road, S.E.—Dent. Surg. £200.
Birmingham and Midland Ear and Throat Hospital.—Jun. H.S. £200.
Birmingham, Children's Hospital.—H.P. and H.S. £120. Also Phys. to Out-patients.
Birmingham General Hospital.—Res. Anæsth. and Obstet. H.S. Each £100.
Birmingham, Queen's Hospital.—H.P.'s and H.S.'s. Each £90.
Bristol General Hospital.—H.P.'s, H.S., Cas. H.S., Obstet. O. and H.S. to Spec. Depts. Each £150.
Burnley Union.—Res. M.O. £300.
Cancer Hospital (Free), Fulham-road, S.W.—H.S. £150.
Canterbury, Kent and Canterbury Hospital.—Hon. Radiologist.
Chester Royal Infirmary.—Two Hon. A.P.'s. Also Hon. Asst. Ophth. Surg.
City of London Hospital for Diseases of Chest, Victoria Park.—H.P. £125.
Durham County and Sunderland Eye Infirmary.—Asst. S. £500.
Durham County Hospital.—H.S. £150.
Eday, Orkney, Parish Council.—M.O.
Exeter, Royal Devon and Exeter Hospital.—H.P. £150.
Glasgow, Bellahouston Ministry of Pensions Hospital, Cardonald.—Res. M.O. £300.
Great Yarmouth Hospital.—H.S. £200.
Greenwich, Dreadnought Hospital.—H.S. £150.
Greenwich, Miller General Hospital.—Hon. Asst. Anæsth.
Halifax Royal Infirmary.—Third H.S. £175.
Hôpital Français, 170, Shaftesbury-avenue, W.C.—Sec. Res. M.O. £100.
Hospital for Sick Children, Great Ormond-street.—H.S. £100.
Hull, City and County of Kingston-upon-Hull.—Asst. M.O £500.
Hull Royal Infirmary.—Asst. H.S. £150.
Johannesburg, University College.—Prof. of Anatomy. £1000.
Liverpool, Royal Southern Hospital.—Two H.P.'s and three H.S.'s. Each £100.
London Temperance Hospital, Hampstead-road.—Res. Cas. O. £150. Asst. Res. M.O. £120. Also Asst. S.
Lowestoft, St. Luke's Hospital.—Asst. M.O. £478.
Lybster, Latheron Parish Council.—M.O. £130.
Manchester Ear Hospital.—Anæsth. 15 guineas.
Manchester Northern Hospital for Women and Children.—H.S. £200.
Margate, Princess Mary's Hospital for Children, Cliftonville.—Jun. Asst. M.O. £422.
Maudsley Hospital, Denmark Hill, S.E.—Med. Supt. £900.
Ministry of Pensions Hospital, Cannock Chase, Hednesford, Staffs.—Jun. M.O.; also Jun. M.O. at Leicester Frith Home of Recovery. Each £350.
National Hospital for the Paralysed, &c., Queen-square.—Asst. Surg. to Ear, Nose, and Throat.
Oxford, Radcliffe Infirmary and County Hospital.—Cas. H.S. £200.
Plymouth, South Devon and East Cornwall Hospital.—Hon. Pathologist.
Preston County Asylum, Whittingham.—Asst. M.O. £528 17s. 6d.
Queen Charlotte's Lying-in Hospital, Marylebone-road.—Asst. Res. M.O. £60.
Queen Mary's Hospital, Stratford.—H.S.
Queen's Hospital for Children, Hackney-road.—Res. M.O. £200.

Royal Free Hospital, Gray's Inn-road.—Sen. Asst. to Path., &c. £500.
Royal Northern Hospital, Holloway, N.—Anæsthetist. £10 10s.
St. George's Hospital, S.W.—Two Cas. O.'s. £200.
Singapore Municipality.—Asst. Health O. £910.
Stoke-on-Trent, North Staffordshire Infirmary.—Hon. Asst. Ophth. Surg.
Sunderland Children's Hospital.—Jun. Res. M.O. £150.
Taunton and Somerset Hospital.—Sen. Res. H.S. £200.
University of London.—Prof. of Surgery. £2000.
West Bromwich and District Hospital.—Res. A.H.S. £200.

The Chief Inspector of Factories, Home Office, S.W., gives notice of vacancies for Certifying Surgeon under the Factory and Workshop Acts at Dalkeith (Edinburgh), Hungerford (Berks), and Woking (Surrey).

Births, Marriages, and Deaths.

BIRTHS.

COOKE.—On Feb. 2nd, at Rodney House, Rodney-street, Liverpool, to Ethel Lilian, the wife of W. E. Cooke, M.D., F.R.C.P.E., D.P.H.—a son.
GOODWIN.—On Feb. 9th, at Conyers House, Newcastle-upon-Tyne, the wife of Cecil G. R. Goodwin, L.R.C.P., of a daughter.
MASON.—On Feb. 5th, at North Common-road, Ealing, the wife of Dr. J. B. Mason, of a daughter.
STANFORD.—On Feb. 9th, at Old Court, Hanger Hill, W., the wife of Wing-Commander C. E. Cortis Stanford, D.S.O., R.A.F., M.S., of a daughter.
WATERHOUSE.—On Feb. 7th, at 25, The Circus, Bath, Mabel the wife of Dr. Rupert Waterhouse, M.R.C.P., of a son.

DEATHS.

GLASSINGTON.—On Feb. 7th, at Pelham-crescent, S.W., Charles W. Glassington, M.R.C.S., aged 65 years.
SERGEANT.—On Feb. 4th, at The Elms, Wrea Green, near Kirkham, Lancs., Edward Sergeant, M.R.C.S. Eng., L.R.C.P. Lond.

N.B.—A fee of 7s. 6d. is charged for the insertion of Notices of Births, Marriages, and Deaths.

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FOOT-AND-MOUTH DISEASE: WITH SPECIAL REFERENCE TO ITS OCCURRENCE IN MAN.

BY A. K. CAMERON, M.R.C.V.S.

(From the Royal (Dick) Veterinary College, Edinburgh.)

OWING to the highly infectious nature of foot-and-mouth disease the means of dissemination are many, and although cattle, sheep, goats, and pigs are the animals usually affected, the horse, dog, cat, and man may acquire the disease. The causative agent is ultra-microscopic, and has been shown to have the faculty of living for a considerable time outside the body of any of its various hosts. The disturbance of trade, the diminished meat and milk supply, and the rapid spread of disease, render very serious the epizoötic in this country to-day. As man may be infected, the matter is also of great interest to the medical profession, not only in country districts where man is in direct contact with infected animals, but also in towns where milk from foot-and-mouth cases may be consumed.

Present Knowledge of the Disease.

As with all ultra-visible viruses, little is known of the bacteriology of foot-and-mouth disease. Much work has been done in this country and abroad, and at the present moment a committee of distinguished medical and veterinary bacteriologists and pathologists is investigating the ætiology under the auspices of the Ministry of Agriculture. So far all attempts to isolate the organism have been unsatisfactory. The incubation period in cattle is from one to ten days, or even longer. The temperature of the animal rises; in one or two days small vesicles appear upon the mucous membrane of the mouth, containing a yellowish, watery fluid, and gradually extend. In many cases about the same time considerable swelling and tenderness are noticed about the feet, and in a few days eruptions similar to those within the mouth appear. In milch cows the udders, particularly the teats, show the same vesicular eruption. The appetite is in abeyance, and the animal opens and shuts its mouth with a characteristic smacking sound, while strings of ropey saliva hang from the mouth. The vesicles rupture shortly after their appearance, leaving erosions in the mucous membrane and upon the skin in the region of the feet. Similar erosions occur on the teats. Sloughing is exceedingly rare in other parts of the body, owing to the tough nature of the skin. The heart and various other internal organs may be affected, in which case the disease is often fatal. The mortality is generally low, ranging from ½ to 40 per cent., varying with the severity of the epizoötic. It is more fatal in young animals, of which 60–80 per cent. may contract a fatal gastro-enteritis.

Foot-and-Mouth Disease in Man.

Time and again during various outbreaks in America and the continent cases have been reported of the disease occurring in man, but in a large number of instances the disturbance in health has been so slight that the medical attendant has not been notified, and in all probability the disease is more common than is generally believed. The human subject may be infected by direct contact with affected animals, either by the transference of virulent saliva or contents of pustules to the mucous membrane of the mouth, to the conjunctiva, or through already existing wounds. More frequently, however, infection is carried by milk and its produce (cheese, whey, butter, &c.) from infected cows; and consequently human beings may be affected in areas where foot-and-mouth disease does not exist.

The symptoms in man are essentially the same as those in stock. A few days after infection there is a rise of temperature, occasionally accompanied by vomiting, diarrhœa, and abdominal cramp. Generally there is a headache, vertigo, lassitude, and pain in the limbs. The mouth feels warm and dry; swallowing is painful; the mucous membrane becomes reddened, especially on lips, cheeks, gums, and the edge of the tongue. At a later stage vesicles appear which may attain the size of a pea, then rupture and rapidly heal. Less frequently, vesicles are also found on the skin of the face, hands, and feet; generally localised on the tips of the fingers and base of the nails, though they may also be found on the toes, nose, conjunctiva, and various other parts of the body.

The disease in adults is generally mild and of about a week's duration. In children, however (rarely in adults),

it is sometimes associated with gastro-intestinal catarrh which may terminate fatally.

A Recent Outbreak.

Petit in 1919 described an outbreak in a Luxemburg village of 300 inhabitants, of which 20 contracted the disease. Five days after the beginning of the outbreak in cattle the disease appeared in man. The first symptoms were obstinate headache and fever, and occasionally vomiting and epistaxis. The temperature remained between 102° and 104° F. for about three days and then gradually fell. At the beginning there was stomatitis, inflammation of the gums, and a fœtid breath. In three cases only, small circular ulcers appeared on the gums at the end of the third day. All the patients recovered in a week; they had all been drinking uncooked milk from infected cattle.

Preventive Measures.

Prevention is attended by very obvious difficulties. Infected cattle which recover have not acquired a permanent immunity, and may act as carriers for months after their apparent recovery. Milk pasteurised at 60° C. for 20 minutes is safe so far as infection of man is concerned, but butter and cheese cannot be so treated. Fortunately, however, milk from infected cows is not readily convertible into either butter or cheese. Accordingly every effort must be made to stamp out the disease immediately in cattle. Inoculation has been adopted in some countries to prevent the spread of foot-and-mouth disease, and while this procedure has undoubted value when the disease is indigenous it is useless in sporadic outbreaks; neither is medicinal treatment to be recommended, as the disease would spread faster than it could be cured. The strictest quarantine by itself has been found ineffective in preventing the spread of the virus. Accordingly the rigidly enforced policy of quarantine, slaughter, and disinfection is essential. In the treatment of human cases quarantine and disinfection should be vigorously enforced, as man may act as a carrier of the disease to other animals.

Economic Damage.

The economic importance of foot-and-mouth disease lies in the serious losses sustained by agriculture. Since the mortality is comparatively low the havoc caused by the pestilence is generally underestimated; in fact, the natural mortality is perhaps the least of all the losses. The fever and inability to feed cause a rapid loss of flesh and a lessening or cessation of milk production, often permanent. In addition any milk secreted is infective, inferior in quality, and often useless for commercial purposes. The inflammation of the feet may cause sloughing of the horn from the toes with resultant lameness and lasting injury. Abortion is frequent. Altogether direct losses may amount to 30 per cent. of the value of affected animals.

There are also indirect losses which cannot be calculated but reach enormous proportions. Dairy farming is suspended; movement of live stock and farm produce is greatly restricted, and the whole business of marketing, transporting, feeding, and slaughtering is interrupted and disorganised.

Any treatment, therefore, which aims at anything less than absolute eradication is obviously futile.

THE ECONOMY OF HOUSING.

An intermediate issue of the fortnightly record of the National Housing and Town Planning Council, dated Feb. 4th, is devoted to correspondence which has passed between the Secretary of the Council and Sir Charles Ruthen, Director-General of the Housing Department of the Ministry of Health. The following points are stated as embodying the considered judgment of the leading members of the Council:—

1. The first 100,000 houses completed by the close of 1921 are infinitely better houses than those built for the working classes before the war. Instead of the pre-war urban houses, built 20, 30, and 40 per acre during the past three years a limit of 12 to the acre has been set; each house is thus provided with a valuable garden at a minimum of expense. More economical methods of developing sites has enabled the cost of road-making to be reduced by grading them as arterial, secondary, and residential roads. On the whole, the new houses are extremely plain and simple in form; architects have shown wisdom in planning rooms broad and not deep to avoid dark corners. The sizes and heights of rooms have been a fruitful source of difference between the housing committees of local authorities and the Ministry of Health; the view generally held by local authorities is that economy in this respect has been carried too far. Without the approval of the Ministry local authorities have not been able to make a single contract; those concerned can testify to the meticulous care with which items amounting to a few shillings have been rigorously excluded.

2. The cost of the first 100,000 houses has been too great. Concerning this high cost, the charge of profiteering in the general sense most certainly cannot stand as against the architect; and even in the other great sections of the building industry—both operative and employing—it is difficult to establish the charge of profiteering. In 1919 and 1920, and early in 1921, the costs of production were extremely high in all industries. Throughout the whole country there was a kind of vicious circle of determination to demand high prices, and if the charge of profiteering is to be regarded as valid, then it must be brought against all those engaged in every industry. It becomes so general a charge that it loses all definite point and critical value. The real doubt arises concerning the wisdom of the Government and local authorities in pressing forward with their housing schemes in a period of high building costs. On this point only one conclusion is possible, relating to the carrying into effect of certain promises concerning social betterment, given to those members of the community who poured out from poor homes to serve their fellow men, and who on returning from the war found themselves and their families faced with a deplorable famine in housing accommodation. The Government, therefore, rightly proceeded to redeem their pledges. Each week now witnesses the falling of prices towards a post-war normal level. It is already possible to secure tenders for parlour cottages at £500. Assuming that £1 to-day buys the same commodities as 10*s.* did before the war, the £500 cottage may be regarded as the equivalent of the £250 pre-war cottage. The period of high building cost has clearly come to an end. In the opinion of the Council the verdict of history will be that whilst it has been a costly business to build the first 100,000 houses it would have cost infinitely more in social discontent and national humiliation if housing pledges had been broken or evaded. The Council also feel that when the public are fully cognisant of the real merits of the houses built, and to be built, by 1200 local authorities under the Housing Act of 1919, we shall as a people begin to be justly proud of the honourable fulfilment of pledges redeemed throughout a period of unprecedented economic difficulty.

PRIMITIVE INSTINCTS.

THE first of a series of lectures, given under the auspices of the People's League of Health on "The Mind and What We ought to Know About It," was delivered at the Royal Society of Arts on Feb. 6th by Dr. Bernard Hart, physician for mental diseases at University College Hospital, London.

In the old days, said the lecturer, it was thought that instincts and humanity had little in common; that, in fact, instincts belonged to the lower animals, and played a relatively insignificant part in guiding the actions of man, who was really governed by intelligence and reason. Many people still approximately held that view, but it was a delusion that had to be shattered. Man was found not to be guided purely by reason and intelligence; it would be more true to say that he was very occasionally so guided. Man, just as much as animals, was guided by instinct, which was the mainspring of all animate action. To illustrate his statement, Dr. Hart mentioned the case of a fanatical atheist, who possessed a knowledge of religious polemics sufficient to enable him to establish his beliefs, to his own satisfaction, by overwhelming arguments. In his earlier life he had been a Sunday school teacher, and his atheism commenced from the time when his fiancée eloped with one of his colleagues. The real driving force in the man's conversion to atheism was the emotional (using the word in quite an untechnical and general sense) effect upon him of jealousy and injured self-esteem; analysis of his emotions brought to light the primitive instincts of sex and self-assertion. Everything that we called emotion was really the obverse of an instinctive force. The patient in question, if asked why he was an atheist, would give an elaborate train of reasoning to justify his views which the outside observer knew did not represent the truth—an example of rationalisation, or the ascribing to an apparently rational cause something of quite other origin. It was important to note that the man was completely unconscious of the real force that drove him and was honest in his own beliefs.

Rationalisation Common to All Men.

While man was being driven to certain views, opinions, and acts by the force of emotion, he at all costs always insisted on finding a specious reason for what he did. The words from the play *You Never Can Tell*—"You think you don't, but you do"—represented very well the attitude of the psychologist to his fellow members, and he might also add "You think you do, but you don't." So-called reason played a very strange part in human life, and it was always well to be suspicious of one's own sweet reasonableness and not assume that it was all that it seemed to be; secondly, one should be prepared to recognise that instinctive forces might play a very much larger part in life than was apparent at first sight. Dr. Hart showed how the parental instinct would drive a man to make sacrifices for the sake of his child. The difference between man and the lower animals in this respect was that the former had a greater capacity for selecting the ways in which instinct could be satisfied.

The answer to the question, Why does a particular man do a particular thing? could generally be made in terms of instinct, but to the question, Why was the thing done in a particular way? the answer was more often in terms of reason and intelligence.

The Primitive Instincts.

The number of primitive instincts, he said, was a matter of dispute among psychologists. Whether there were many, or only a few which might be called primary instincts and which branched out in various directions, it was easy to name those which had most effect upon life. The first was self-preservation, of which self-assertion might be regarded as a branch. The second was that of sex, which was responsible for an enormous amount of behaviour and activity. It was not only responsible for philandering and the "grand passion," but also for literature and the drama. The third great instinct was that of the herd; this was shown not merely as the gregarious habit, for it underlay many of our opinions and beliefs, and was partly responsible for morality, patriotism, conventions, and prejudices. It tended to make the individual accept beliefs, current in his class, which while they were not based on real knowledge were defended by rationalisation.

Conflict.

A man's thought, life, and activity might be the result of one instinct being aroused after the other, but two might be stimulated at the same time and work congruously, or they might be incompatible and in the latter case an intrapsychic conflict occurred. In civilised life this was inevitable because there were a number of restraints which derived their force from the herd instinct, and which would constantly be opposed to the manifestation of other instincts. During the war mental conflict was responsible for many nervous disorders known as shell shock. Another example was the sex instinct in the growing child which was restrained by the requirements of civilised life. One of the most important functions of education in the future would be to determine the best way in which that inevitable conflict could be met. There was a biological necessity that some sort of solution to the conflict of instincts must be found, because so long as conflict existed action would be stultified, while its unpleasant existence could not without harm have a long duration. The ideal method of dealing with it was that of conscious control. On the other hand, the conflict was often evaded and quite unconsciously. Sometimes the logic-tight compartment method was used, and the forces allowed to drive first in one direction and then in the other. The business man who had one set of morality for home life and another for his office was an example. Still another method was that of avoiding conscious control, and it was along that line that we emerged into the realms of disease and in part, possibly, insanity.

To What End?

It was incumbent upon us, Dr. Hart concluded, to recognise the existence of the instinctive forces, and it was clearly imperative for education in any real sense of the word to take account of those forces and coördinate them in the light of reason and intelligence. Education should not consist in the mere blind use of the herd instinct to erect taboos and shibboleths; at the same time the herd instinct was not a thing to abolish, for it had supreme value if used with knowledge and reason.

VACCINATION AND LIBERTY.

THE following paragraph appears beneath a cartoon in the *Bulletin* of the Chicago School of Sanitary Instruction for Jan. 21st: "The person who submits to vaccination is free to come and go as he likes. The person who refuses to avail himself of this protection and catches small-pox is subject to forcible detention and quarantine for a month in order to protect the public. Vaccination is, therefore, less of an interference with one's personal liberty than is quarantine. In addition the vaccinated person doesn't have small-pox."

FRANCE'S STATIONARY POPULATION.

WE learn from the *Economic Review*, which is appearing from this week on in enlarged and improved form, that the French Ministry of Labour has just issued the following comparative statement of vital statistics for the first half-year of 1920 and 1921:—

	1920.		*1921.*
Live births ..	424,668	....	421,180
Stillbirths ..	19,823	....	19,874
Deaths	356,728	....	348,329
Marriages ..	333,242	....	238,185
Divorces ..	12,268	....	15,567

Although the diminished number of births—namely, 3488—is more than set off by the 8399 fewer deaths, the population is evidently only on the increase at the higher ages.

"ALLEGRO" AUTOMATIC HONING AND STROPPING MACHINE.

THIS little machine, which automatically hones and strops safety-razor blades, has much to recommend it. The contents of a packet of safety-razors cannot be all equally good, and this is a reproach which the manufacturers of safety-razors can share with the manufacturers of ordinary razors. It is claimed by the makers of the Allegro that when a thoroughly good safety-razor blade has been identified by trial, it can be kept in perfect order for a year by the use of their machine, and that the trouble given in applying the machine is practically negligible. The cost of the machine is 25*s.*, and it can be obtained from The Leverite Lamps, 23a, Old Bond-street, London, W. 1.

THE HOME NURSING MANUAL.

Mr. C. F. Wightman, F.R.C.S. Eng., has written a manual with this title (London: George Gill and Sons. 1921. Pp. 193) primarily for students taking classes in nursing as a branch of first-aid, and its 11 chapters have been arranged as a series of five lectures. The subjects covered are the appointments of the sick room and the general duties of an amateur nurse; notes on ventilation, respiration, digestion, food and cooking, bandaging, and so forth, are also included, with supplementary information on personal hygiene and the care of infants. The chapters are preceded by brief notes of direction to lecturers and a well-selected series of questions at the end to help the student in self-examination. The book is illustrated, and a coloured frontispiece shows the ideal furnishing arrangements of a sick room.

A USEFUL ELECTRICAL CATALOGUE.

WE have received from the Cox-Cavendish Electrical Co., Ltd., whose London showrooms are at 105, Great Portland-street, W., comprehensive catalogues of X ray apparatus and of electro-medical apparatus, bound together in one volume. Each catalogue contains 169 pages, and both are fully illustrated. The X ray catalogue includes transformers, induction coils, interrupters and switchboards, fluorescent and intensifying screens, measuring instruments, and X ray tubes; while the electric catalogue describes galvanic and faradic apparatus, a "plurostat machine," radiant heat and light baths, Schnee baths, vibratory instruments, and Swedish exercise apparatus. Schedules for complete X ray installations are given, and in many instances descriptions and notes are supplied in regard to the effective working of the apparatus. Catalogues will be sent post free to any medical man on application to the company at Twyford Abbey Works, Acton-lane, Harlesden, London, N.W. 10.

THE DIET OF SCHOOLBOYS.

IN a letter which appeared in the *Times* of Feb. 3rd Sir Henry Morris contributes to the recent discussion concerning school diet some interesting figures relating to the weight of boys at Epsom College. Since the Armistice a register has been kept, under the direction of the medical officer who visits the school daily, which shows the name, age, height, and weight at beginning and end of term of each boy. In 1921 the register showed that 94·67 per cent. of boys weighed heavier in December than in January, the average gain per boy being 10 lb. 3 oz.; 2·22 per cent. had lost, the average loss per boy being 1 lb. 8 oz.; and 3·11 per cent. were the same weight. The week's dietary is as follows:—

Breakfast: 8 A.M.	Dinner: 1.15 P.M.
Wednesday.—Sausages.	Roast legs of mutton, swedes, and gravy. Jam tarts.
Thursday.—Fried bacon.	Roast topsides of beef, peas. Stewed prunes and custard.
Friday.—Porridge. Marmalade or apples.	Stewed steak and cabbage. Boiled suet and date puddings with cornflour sauce.
Saturday.—Bloaters.	Boiled salt silverside and carrots. Baked rice milk pudding.
Sunday.—Coffee instead of tea. Boiled new-laid eggs.	Cold sirloins and beetroot. Lemon-cheese tarts.
Monday.—Corned beef.	Thick vegetable soup. Roast mutton and butter beans.
Tuesday.—Porridge. Marmalade or apples.	Hot roast sirloins and cabbage. Suet pudding with treacle.

Potatoes daily at dinner. At afternoon tea (4 to 5 P.M.), which is not a "laid-out meal," bread and butter, or "Mayco" or dripping, or jam, or honey, are provided.

7 o'clock.—Tea, bread and butter, dripping, or "Mayco," potted meat or cheese, golden syrup, currant bread, or oranges.

On Sundays cake and jam always provided. On Sundays and Wednesdays butter was always provided; on other days "Mayco" (half butter and half margarine), but again now butter daily.

Without entering into the controversy on this subject, we may be permitted to observe that no future Waterloo seems likely to be lost in the dining-halls of schools whose dietary approximates to the above.

CHANGES IN URINE AFTER PASSING.

SOME hours after passing, normal clear urine deposits a very light flocculent cloud or nubecula, commonly spoken of as "mucin." Its amount is very small (Mörner, who investigated it in 1895, obtained about 4 mg. per litre). Although its chemical nature is still rather obscure, it is usually accepted as being a mucoid, or glyco-protein containing nitrogen and sulphur. Others claim it as a nucleo-protein—i.e., as a substance also containing phosphorus. Probably it is a mixture of substances, and it is also very likely that it represents an important component of the protein present in physiological "albuminuria." It is supposed to be formed by the epithelium of the bladder and urethra, and thence added to the urine, and its amount is increased in inflammatory states of the urinary tract and in conditions of pelvic congestion. It has also been stated to be present in increased amount in leukæmia, nephritis, typhus, and jaundice. Another change seen in urine on standing is the appearance at the surface of a pellicle of solid matter. This was known to the older physicians as *kyestein* or *kiestein*, and its appearance was supposed to be most marked in pregnancy (κύησις = conception). It seems to consist of bacteria and earthy phosphates and probably has little significance, beyond showing that bacterial change has occurred. Whether such changes are more marked in pregnant urine seems uncertain, but in any case its interpretation would be difficult.

NEW U.S. PUBLIC HEALTH SERVICE HOSPITALS.

BEFORE the year ends the U.S. Public Health Service expects to add three more hospitals to the 14 opened since Jan. 1st, 1921. It is also preparing nine other hospitals, of which four will probably be opened by May 1st and the others a little later. All these hospitals have either been leased from private owners or taken over from the Army or the Navy. The new construction authorised by Congress at the extra session is not yet well under way. Hospitals put into commission during the last three months include the former Navy hospital at Gulfport, Miss., with 150 beds; the hospitals at Jackson Park, Chicago, Colfax, Iowa, and Portland, Oreg., with a total of 350 beds; and the Edward Hines Junior Hospital at Maywood, just outside of Chicago, with 1000 beds. Those to be opened in December are the Fort McKenzie at Sheridan, Wyo., and one of the two buildings at Fort Logan H. Roots, at Little Rock, Ark., with a total of 480 beds. The Navy hospital at Las Animas, Colo., 750 beds, will be taken over as soon as a suitable public health service staff can be organised. These hospitals will increase the capacity of all service hospitals to about 22,600. Hospitals planned to be opened for 1922 include the tuberculosis hospitals at Dawson Springs, Ky., Excelsior Springs, Mo., and Rutland, Mass., with a total of 920 beds; the general hospitals at Fort Walla Walla, Wash., near the junction of the coast wheat and fruit belts, and at Norfolk, Va., with a total of 1240 beds; and the neuro-psychiatric hospital in the Bronx, New York City, with 1000 beds.

PUBLIC HEALTH AT COLOMBO, 1920.[1]

THE population of Colombo was estimated to be 278,664 at the middle of the year 1919, in accordance with the previous intercensal rate of increase, and on this estimate the birth and death ratios have been calculated; but Dr. Wm. Marshall Philip, the medical officer of health, commences his report by stating that these rates "must be accepted with reserve," as the provisional census report shows that the estimated population was "very considerably over the mark." The birth and death ratios in 1920 were respectively 25·8 and 29·1 per 1000. The birth-rate was the highest recorded since 1906, and well above the average (22·9) for 1910–19. The death-rate was somewhat higher than the decennial average (28·0); if corrected for deaths in hospital of non-residents in the town, the rate becomes 25·2, the same as in the year preceding. The birth ratios varied from 14·4 per 1000 among Tamils of Southern India to 33·8 among the native Sinhalese; for European residents the ratio was 17·7. The death ratios were 14·6 for Europeans and 34·3 for Sinhalese; if corrected for deaths in institutions of non-residents these ratios become 9·5 and 27·0 respectively. Pneumonia was, as usual, the disease causing greatest mortality. The deaths numbered 1106, giving a ratio of 3·97 per 1000. Among the Sinhalese population the ratio was 4·55 and among Malays 4·76, while the Europeans lost only 1·28 per 1000. The prevalence was, however, less than in 1919, when the mortality ratio was 4·55 for all races, and 5·40 for Sinhalese. During 1919 there had been some increase in enteric fever, attributed partly to overcrowding (owing to war conditions) and partly to aggregation of large numbers of people in attendance at the rice depôts that had been established. There were 682 cases (2·51 per 1000) and 268 deaths (0·99 per 1000). During 1920 there was a still further increase, the total cases admitted or reported numbering 879, of which 573 were traced to Colombo (compared with 421 in the previous year). Dr. Philip remarks that "the very high fatality among the notified cases—viz., 38·45 per cent.—clearly indicates that a large number of non-fatal cases escaped notification; for even amongst the cases treated at the Enteric Hospital, which include a large proportion of severe attacks and are frequently admitted in the last stages of the disease, the case-mortality was only 19·3 per cent." Dr. Philip relates in detail an interesting instance of spread of infection in a boarding house, traced to uncooked lettuce; six, or possibly seven, persons were infected in this way. Enteric fever in Colombo decreased very considerably, though irregularly, during the years 1907–14, but since then has shown a tendency to rise. The association of plague prevalence with grain infection, through the medium of infected rats plus infected fleas in old grain bags, is conclusively demonstrated. There were 235 cases in all, 223 of which terminated fatally, giving a case-mortality of 94·9 per cent., and a death ratio of 0·80 per 1000 of the population. The local intensity of human plague and its connexion with the disease in rats is well shown in two spot-maps of Colombo and its environs. An important and interesting series of experiments were carried out in the municipal laboratory on the excessive incrustation of water mains by iron algæ and polyzoa. By the use of Jewell mechanical filters the growth of polyzoa has been prevented, and algal incrustation diminished. This most interesting report is well illustrated with maps and diagrams, and contains evidence of much original research.

[1] Administration Report of Public Health Department Colombo, 1921.

MENTAL CASES IN ABERDEEN.

THE directors of the Aberdeen Royal Asylum report a deficit on the year's working of £740 13s. 9d., and a total deficit of £2565, if a loss of £1824 on Daviot Farm be included. The expenditure showed a decrease of £726 over last year. Dr. R. Dods Brown, the physician superintendent, states that the number of admissions for the year was 209, of discharges 147, and of deaths 94. Twenty-three Service patients are at present in the hospital, and in all 64 ex-Service men have received treatment. Of these 55 have been discharged—12 recovered, 4 relieved, 19 not improved, and 4 have died. Dr. Dods Brown remarks on the erroneous popular belief that all of these patients are victims of shell-shock. A large proportion of them have never been abroad, while some of those who had were never in the war area. He maintains that the mental disorders which they exhibit differ in no way from that of other patients in mental hospitals. Many are cases of congenital mental enfeeblement and would have become patients sooner or later had there been no war. Dr. Dods Brown goes on to say that in view of the statements that have been made from time to time as to the treatment of these men, it may be of interest to note that on Oct. 25th Service patients then resident were examined individually by the medical inspector appointed by the Minister of Pensions and in his report he states that "The wards had a very comfortable and homelike appearance, and at the time of my inspection the patients were either sitting at small tables playing cards, lounging and smoking in easy chairs or couches, reading newspapers, or playing billiards. There was a good supply of literature. I also inspected some of the dormitories, which were clean and well kept, and warmed by a method of hot-air ventilation. Both male and female nurses were being employed throughout the male side .... There were no complaints as to the diet, and the more sensible of the patients expressed themselves as being well satisfied with the quality and quantity of the food .... It appeared to me that the patients were being kindly and sympathetically treated and it was evident that they were on friendly terms with the staff." Sensational reports concerning the effects of the religious revival in some of the towns and villages in the north-east of Scotland are stated to be much exaggerated. Since the end of September there have been nine patients admitted from the parishes in which the movement has taken place; but for a similar period this number has frequently been exceeded within the last five years. Several of these patients took little or no interest in the revival, and because others had attended meetings it is not right to assume that this was the cause of illness. Of the nine patients received four were suffering from insanity associated with organic disease of the brain, in the other five cases an exciting cause for the breakdown was found in causes which were much more potent than the revival.

INDEX TO "THE LANCET," VOL. II., 1921.

THE Index and Title-page to Vol. II., 1921, which was completed with the issue of Dec. 31st, is now ready. A copy will be sent gratis to subscribers on receipt of a post-card addressed to the Manager of THE LANCET, 1, Bedford-street, Strand, W.C. 2.